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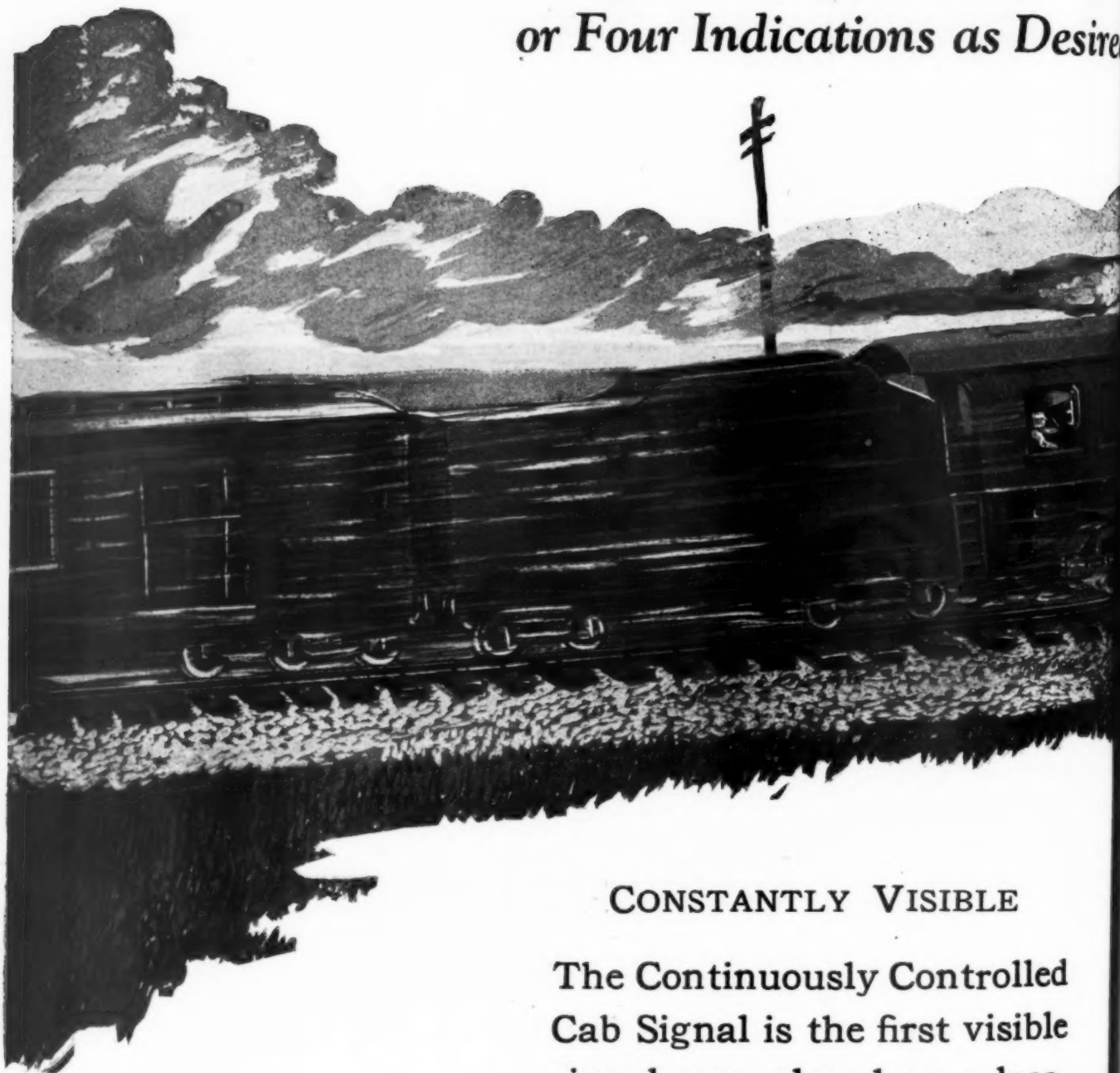
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Railway Age

Vol. 86, No. 21

May 25, 1929

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Decision of the Supreme Court in O'Fallon Case

THE decision of the Supreme court in the O'Fallon valuation case will not be an unmixed blessing to the railroads. As was to have been expected, it already has resulted in the nation-wide publication of greatly exaggerated estimates of the effect it will have upon their total valuation, and upon the advances in rates they lawfully can and probably will make. The published estimates of the difference between the total valuation that would be made in accordance with the method favored by the Interstate Commerce Commission, and that upheld by the Supreme court, range from \$10,000,000,000 to \$21,000,000,000. One widely published dispatch sent out from Washington says that there is involved "a potential difference in freight rates of \$2,000,000,000 a year."

Already agitation has been begun for modification of the LaFollette valuation law upon the erroneous assumption that its provisions are entirely responsible for the way in which the court decided this case. The wild movement of railroad stocks that occurred immediately after the decision was announced shows that many speculators have as erroneous ideas of the true significance of the decision as most of those who have commented upon it in the press.

The potentialities of evil in a widespread misunderstanding of the decision and its probable effects are obvious. The Transportation Act assured the railways the opportunity to earn a fair return on a fair valuation under just and reasonable rates and honest, economical and efficient management. This was construed by anti-railway propagandists as a "guarantee" and led to attacks upon the law and the railways which helped to render it impossible to get the law carried out and became a serious menace to all fair regulation. Will the misleading statements being made regarding the O'Fallon decision have similar effects?

Some Valuation History

There were important issues, both legal and economic, presented in the case. About thirty years ago, during a period of depression, when the cost of reproduction of the railways was less than it had cost to construct them, the Supreme court first held that as a constitutional principle, all the elements that must be given weight in the valuation of any other property held in private ownership must be considered in the valuation of a railroad. These included the cost of construction and the cost of reproduction. The railroads never sought, but for years opposed, a valuation of their properties as a basis for the regulation of rates. It was advocated by Senator LaFollette and others who believed it would be less than the capitalization of the railways or than what it had cost to construct them. It was also advocated for years by the Interstate Com-

merce Commission. The valuation law passed in 1913, of which Senator LaFollette was the author, specifically provided for the ascertainment of the cost of reproduction, as well as all other elements of value.

There subsequently occurred, owing to the great war, large increases in the cost of reproduction, which, of course, were not anticipated by those who had advocated a valuation and who had written the law requiring it. The Interstate Commerce Commission, when confronted with the necessity of placing final valuations upon the railways tried to evade the requirement made in all previous decisions of the Supreme court, and in the LaFollette law itself, that weight should be given to the cost of reproduction. In its decision in the O'Fallon case and the litigation to which it led, the commission plainly endeavored to get the Supreme court to reverse all the court's previous decisions holding that the cost of reproduction should be considered. This the court has refused to do. It has merely held, as it always has held, that cost of reproduction must be considered, and that the commission erred in not giving it any weight at all.

Cost of Reproduction Only One Factor

There is, however, no ground whatever for the assertions being made that the decision will result in an aggregate valuation of railway property exceeding by \$10,000,000,000 to \$21,000,000,000 the valuation that would have been made if the court had upheld the commission. Such estimates are based upon the assumption that the court has held that the valuation must be based entirely upon what it would cost to reproduce the railways at present wages and prices. The railways never asked the court to make any such decision, and the court has not done so. In its opinion the court said, "No doubt there are some, perhaps many, railroads, the ultimate value of which should be placed far below the sum necessary for reproduction. But" the court added, "Congress has directed that values shall be fixed upon a consideration of present costs, along with other pertinent facts, and this mandate must be obeyed." The court expressly refrained from saying how much weight must be given to cost of reproduction, declaring that that matter was not before it. Its statement, however, that cost of reproduction must be considered "along with all other pertinent facts," and that the valuation of some railways may be less than their cost of reproduction, shows conclusively that it has not held that cost of reproduction alone must be considered, and that, therefore, all estimates of the probable valuation of the railways which are based upon the assumption that it has so held are widely erroneous.

That the valuation must be made larger than it would be if made in accordance with the method favored by

the commission is obvious, but how much larger is entirely conjectural. It necessarily follows that all estimates of the increase in net return that the railways will be legally entitled to earn, and the advances in rates which they will be legally entitled to make, are matters of pure conjecture. The largest net operating income the railways have ever earned in any year—that of 1926—was equivalent to a return of 5.75 per cent on a valuation of about \$21,500,000,000. An average advance of 10 per cent in freight rates alone would amount to \$500,000,000 annually, and would be sufficient to enable them to earn a return of 5.75 per cent upon a valuation of \$30,000,000,000.

It is hard to believe that by merely giving some weight to cost of reproduction the commission would make the total valuation exceed this amount. Obviously, therefore, all the talk about the Supreme court's decision affording legal authority for an advance in rates amounting to billions of dollars annually is the excited comment of persons who have little idea of what is involved or who are trying to arouse a sentiment hostile to the Supreme court and the railways.

Some Practical Aspects of the Matter

In anticipating the probable effects consideration must be given to the practical as well as legal aspects of the matter. The Interstate Commerce Commission for nine years has refused to allow the railways to charge rates high enough to enable them to earn an average return of 5.75 per cent even upon its own basis of valuation, although it has held this would be a fair return. How, then, can it be reasonably assumed that it will in future be easier persuaded to authorize them to charge rates high enough to enable them to earn such a return upon a valuation almost twice as large? Furthermore, while the railways have refused to accept the commission's principles and methods of valuation, they have never actually tried to get it to use, in the regulation of rates, a basis higher than the investment in the properties indicated by their accounts.

The railways have recognized in the past, and they undoubtedly will recognize in future, the fact that public sentiment and economic conditions cannot safely be ignored. They will undoubtedly seek in the future, as they have in the past, for opportunity to earn a net return sufficient to enable them to pay reasonable dividends and to raise capital adequate to the development and improvement of their facilities. They always have recognized, however, that rates must be based upon "what the traffic will bear." They must not be made high enough to interfere with the development and movement of traffic, and they are and always will be largely influenced by competition between the railways themselves and between the railways and other carriers by water and highway. No decision of the Supreme court, can make it possible for the railways to afford to ignore public sentiment or competitive and other economic conditions.

Decision Will Be Beneficial

While the importance and probable effects of the Supreme court's decision are being much exaggerated, it can hardly fail to be of value to the railways. It seems to settle permanently the question of whether the valuation placed upon their properties is to be determined almost arbitrarily in accordance with the economic philosophy of those who happen to be members of the commission at any particular time, or in accordance with established legal and economic principles. It apparently settles finally that confiscation is the same

thing whether railroad property or other kinds of property are in question. In the long run it will undoubtedly afford a higher basis than the commission's principles of valuation would have afforded for calculating the percentage of return earned by the railways, and will therefore reduce the amount of earnings subject to recapture unless the commission allows the carriers to earn a fair return on a valuation much larger than the commission proposed to make. By affording a higher basis for calculating the percentage of return earned it will tend to protect the railways from unreasonable reductions of rates, and thereby enable them to benefit more than they otherwise would from economies in operation. It should have the effect of facilitating advances in rates in sections such as western trunk line territory, where the railways already, on any basis of calculation, are obviously earning much less than a fair return.

The decision will be far from as advantageous to the railways as many persons believe. On the other hand, it should afford a much better assurance than they have had heretofore that they will be allowed, under good management, to earn reasonable dividends for their stockholders and enabled to raise enough capital to furnish the public the kind of transportation service that the public demands and needs.

Reduced Rates for Air Transport

UP to the present time, the passenger airplane lines, except perhaps on the Pacific coast, have not carried enough passengers to affect adversely the passenger revenues of the railways. Several conditions have combined to restrict the number of passengers carried by the air lines. One of the most important of these has been the cost of air transportation; only a fortunate few do not have to consider comparative costs in deciding how they will travel. It was estimated a short time ago by one of the leading air lines that the average rate for air passenger transportation was approximately 11 cents per mile, or about twice as much as the rate for transportation by rail, including Pullman accommodations.

Now, however, the picture appears to be changing, and in a way which may reasonably be expected to have some effect upon the business of the railways. Several of the air lines have recently reduced their passenger rates, one leading operator fixing his new rate at approximately seven cents a mile. In this instance it was stated that the rate reduction was effected as a token of appreciation of patronage on an anniversary of the air line, but it is probable that in the background was the intention of finding out how much additional traffic could be secured by the air line at rates only slightly above first-class railway rates. If the new low rates charged by the air lines are successful in attracting a greater volume of traffic for planes which, under the higher rates, were flying half or less than half full, it is expected that the low rates will be made permanent on these and other lines, and perhaps even further reduced. The closer the air line rates approach railway rates, the more the railways may feel the effect on their passenger revenues, although the prediction of some persons that the airplane will ultimately carry all of the long-distance passenger traffic may well be received with some skepticism.

General Atterbury Advocates Transport Co-ordination

ON another page of this issue is published an abstract of an address delivered in New York by General W. W. Atterbury, president of the Pennsylvania, in which he amplifies and makes still more specific his heretofore-expressed opinion that railroads should broaden their activities to include other agencies of transportation. In this address General Atterbury said that in his opinion the railroads "should give people the kind of transportation they want—not what the railroads think they ought to have." He then told what his company was doing to co-ordinate air and highway transportation with its railway service.

Such an opinion of the function of a railroad company would be arresting from whatever source it emanated. Coming as it does from the executive head of one of the largest railroad systems on the continent, its significance becomes even greater. Is this view of the railroad's function one which will gain favor among railroad men, leading ultimately to a co-ordination of all our various methods of transportation? Such a development would not be surprising. In this connection, however, another of General Atterbury's observations is quite apropos, i.e., that railroads, when they make their plans, must make them at least ten years ahead of general industrial progress in order that the facilities may be available when they are needed.

With the idea of changing railroads into all-round transportation systems once accepted, and with the rapid development now taking place in the newer forms of transportation, it becomes apparent that the day of the pioneer in transportation work is not yet past. The co-ordination of existing methods of transportation with provision to include promptly all further improvements which appear from time to time calls for leadership as capable as railways have ever required. General Atterbury's address gives a vivid picture of the problem—and of the opportunity it affords to railroad genius.

Railroads and the Bituminous Coal Industry

SOME interesting facts regarding the close relations between the railroads and the bituminous coal industry were brought out at the recent Chicago convention of the International Railway Fuel Association. In addressing the convention, H. L. Gandy, executive secretary of the National Coal Association, said: "The extent of the actual participation of the railroads in the business of mining bituminous coal is not generally realized. In a very tangible fashion it cements the bond between the two industries. According to the latest government report thereon, which was for 1924, 135 railroad-owned mines produced 27,000,000 tons of bituminous coal, which represented 5.6 per cent of that year's total production. This coal was mined by 24 railroad-owned companies over a far-flung area. Several other railroads which do not operate mining properties are large holders of coal lands."

Eugene McAuliffe, president of the Union Pacific Coal Company, has been quoted as saying that the bituminous coal industry and capital invested in its rail

movement, if represented by a stock company, would have a total stock issue in excess of seven billion dollars and the railroad interest would control 67 per cent of it. Speaking before the Illinois Mining Institute last November, L. W. Baldwin, president of the Missouri Pacific said: "Our problems are your problems and your problems are ours." Unquestionably the railroads and railroad men are vitally interested in the success of the bituminous coal industry for they are intimately connected with it and have many points of contact and interests in common.

Selecting the Best Among Technical Graduates

IN spite of the division of opinion which still exists among railway officers regarding the relative merits of college and non-college men in railway work, the prejudice against college men is gradually decreasing, and it is safe to say that, even among those most skeptical of the college man, there are few who will today reject one who has the proper qualifications and a genuine will to make good. While this is true generally in the various branches of railway work, it is true more particularly in the engineering department, which on some roads, has even gone so far as to make technical training, or its equivalent, a requisite for employment.

It is quite evident from the information contained in an article appearing elsewhere in this issue that the Delaware & Hudson is not opposed to the employment of technical graduates. Rather, it is plain that this road actually seeks technical school graduates for its engineering force, and goes to special lengths to get the "cream" of those technically-trained men who desire to enter railway work. The article referred to describes the undergraduate student engineering camp which the D. & H. has promoted for the last six summers, and shows the advantageous position of that road in building up a highly efficient engineering organization. It also demonstrates the spirit of co-operation which this road is evincing toward the colleges of the country, and, that the whole scheme is so organized as to produce benefits to the road which are immediate as well as potential. While the service which the D. & H. has been rendering to the colleges through its engineering camp, and the potential benefit of always having a trained force from which to select engineers, have been felt to be, in themselves, of sufficient importance to justify the student camp, the large amount of constructive work which has been accomplished by the camp has combined with these other advantages to make it a highly satisfactory and self-supporting proposition. In 1925, 1926 and 1927 the camp completed necessary track surveys covering a total distance of 113 miles, in some instances extending over a width of from 1,000 to 1,600 ft., while during the last summer, the camp, which included 43 undergraduate engineers from 13 different colleges, completed a survey of 17 miles of existing line, and a new location survey 8.6 miles in length. The outstanding features of the work of the camp have been that it has been done with unusual skill, and with greater rapidity and economy than by the average small survey party. Herein is a thought for the road which has extensive survey work in mind, and for those interested in technically trained men but who are skeptical as to the average college graduate.



The Student Engineers Posed on the Camp Motor Car Equipment

D. & H. Finds Work for College Men

Provides summer employment for 43 undergraduate engineers in survey work with economy to road

IN the face of the skeptical views of many who classed the move as ultra philanthropic, and of doubtful practical value, the Delaware & Hudson undertook a unique innovation in railway engineering practice in 1923. In that year it organized a summer work camp of undergraduate student engineers from a number of the colleges of the country, and put the young men on actual railway work under competent supervision. It was intended primarily as a philanthropic move, but to many it was clear that such an experiment was not without elements of advantage to

the railroad as well as to the embryo engineers employed. From this beginning, the camp has been continued from year to year, including the summer of 1928, an increasing boon to the men, and of increasing economic importance to the railroad.

First Camps Did Track Work

Prior to the summer of 1923, the management of the D. & H. had for some time felt that there was an urgent need for closer co-operation between the railways and the universities and colleges of the country, particularly in the engineering department, and that some definite plan should be inaugurated to interest technically trained men in railway work. This, it was felt, would not only make these men familiar with railway life, whereby they might determine intelligently whether or not they wished to enter it, but would also insure to the railway a source from which to build up a corps of technically trained men, who, previous to regular employment, had demonstrated their ability and aptitude for the work.

The 1923 and 1924 student camps of the D. & H., which consisted of about 20 men each, were planned and conducted under the direction of the engineer in charge of maintenance of way. In both of these years the student engineers were employed solely in maintenance department work, and, under the supervision of competent and experienced instructors, were taught the fundamentals of track maintenance through serving as actual laborers in section and extra gangs.

In considering the camp for 1925, it was thought that the practice of confining the men to actual track work could be expanded, with benefit to both the men and the railroad, to include some railway engineering, particularly in the matter of surveys necessary on the



The Men at Work in the Drafting Car

road for the purpose of keeping its records up to date, and in making studies for future improvements. This plan was adopted, and in 1925, one group of the men in the camp was assigned to survey parties and the other group was organized into an extra gang doing track work under the supervision of several track foremen. The survey group was employed primarily in making track surveys in connection with the roads extended work on curve reduction and line improvements. These surveys, which were made under the direction of the chief engineer and supervised by men from his office, included not only the establishing of the line and grade of the existing lines, but also the location of all buildings and the topography of adjacent territory. The surveys also included a complete location and topographical map of the lines covered, which could be used promptly or filed for subsequent use in connection with line improvement work.

This practice of employing men from the summer camp in survey work was continued in 1926 and 1927, and each year with more effective results. The years 1925 and 1926 witnessed complete surveys of the Champlain division from Whitehall, N. Y., to Rouses Point, with topography of adjacent country and the careful preparation of maps of these surveys. The specific work of 1925 included 39.7 miles between Whitehall and Port Henry, N. Y., while that accomplished in 1926 included a complete survey between Port Henry and Rouses Point, a distance of 64.3 miles.

In 1927, the survey work was considerably broadened, beginning at a point just north of Comstock, N. Y., on the Saratoga division, and extending to Lake Station, N. Y., a distance of 9.1 miles, including practically all of the village of Whitehall west of the New York state barge canal. In this territory, where line changes of considerable importance are contemplated, the work was unusually extensive in that it was found advisable to extend the survey over a width of from 1,000 to 1,600 ft. in order to determine accurately the most suitable location for the relocated line.

Survey Work is of a High Standard

After a decision was made to continue the summer engineering camp again in 1928, in addition to other work planned, the necessity arose for an extended location survey for the purpose of relocating a portion of the Adirondack branch between Hadley, N. Y., and Thurman, in the rolling rugged country of the Adirondack mountains. Immediately it was decided to put the students of the summer camp on this work. Ac-



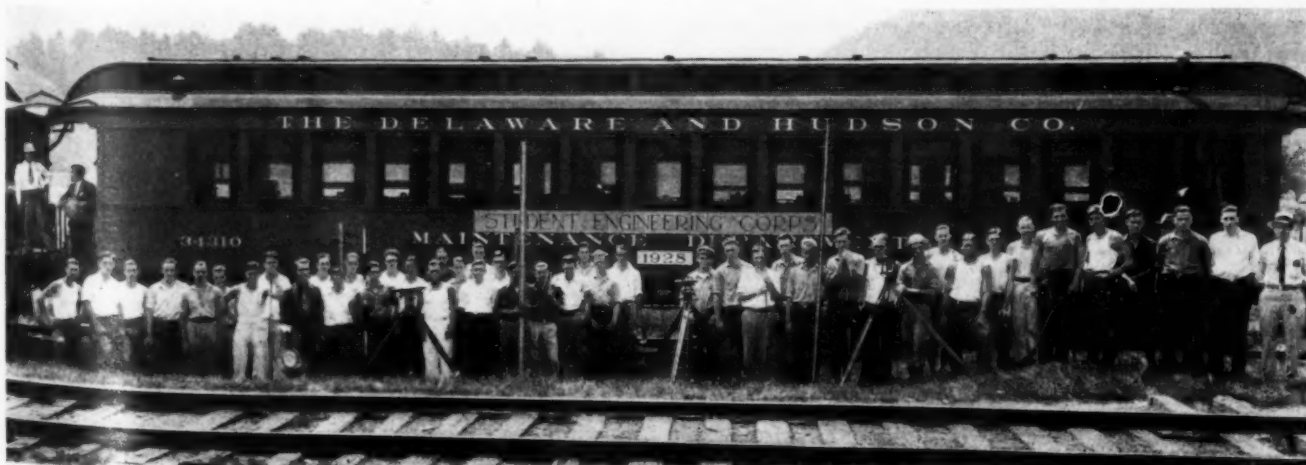
The Entire Camp Assembled in the Dining Car

cordingly, the camp of this year, which was opened on June 23, was located at Thurman.

The first work undertaken consisted of a thorough track survey, including the topography of adjacent territory and finished maps, which extended from a point about two miles south of Hadley, to a point about 1½ miles north of Thurman, a distance of about 17 miles. Along with this work, which was completed on August 1, with a considerably smaller number of actual working days than are included within this period, due to inclement weather, a similar survey was also made over about a mile of track on the D. & H.'s branch line from Thurman to Warrensburg, N. Y.

After this work was completed, beginning on August 2, the camp undertook a complete new location survey, 8.6 miles in length, through the rugged, heavily wooded country in this vicinity. This included every step from the preliminary survey to and including maps of the final location, and a profile and cross-sections of the line, established for use in computing the amount of grading necessary. All of this work was completed by August 21, in 17 working days, some of which were closed to field work on account of bad weather.

Speed in completing the surveys by the camp forces has been accompanied in each instance by a remarkable



Forty-Three Men Representing 13 Colleges Made Up the 1928 Camp

degree of precision and thoroughness, all of the way through the platting and finishing of the accompanying maps. In all surveys, alinement, profile and topography are taken of all lines run. All alinement work is by the azimuth method, with azimuth determined from solar observations which are checked daily if possible. Profiles are run from benches established by a series of check levels from sea level datum. Topography is taken by the actual location of contours of fixed elevation in the field, and all platting of maps is by latitude and departures. From the above, it is obvious that the student summer camp has not only accomplished a large amount of effective work, but that it has been conducted according to the most modern methods taught by the various engineering institutions.

Personnel of Camp is Carefully Organized

In carrying out the work, the personnel of the camp, after the first week of organization, has been divided into two distinct groups, an office group and a field group, the men in each group being selected because of their special ability or aptitude for the work. When a survey is actually under way, the field group is carefully organized into a number of separate parties,

ing. These men registered with the camp through their own request, and throughout the period of the camp were paid \$100 per month, less a charge of \$30 per month for board.

Lodging is furnished by the railroad company in a well maintained camp-car outfit consisting of three sleeping cars, a dining car, a kitchen car, a supply and office car, a drafting car and a plant car which houses an electric generator, a gasoline engine, a water storage tank, etc. This equipment makes use of passenger coaches which have been converted to suit the purpose, and they have been fitted with shower baths, steel bunks, lockers, heaters, electric lights, and all of the tables, chairs and files necessary to a field engineering office.

Camp Benefits Both Men and the D. & H.

As a result of the activity of the D. & H. summer engineering camp, particularly during the last three years, a number of direct and tangible benefits have accrued to both the men themselves and to the railroad, and keen interest is being evidenced by a large number of colleges and universities in the work which is being done. So thorough is this work carried out, and in such an up to date manner, that many of the stu-



The Well Maintained Camp Car Outfit of the Student Camp

which, under the direction of the D. & H. officer in charge, are further arranged in the plan of the survey so as to bring about the most effective results.

The organization followed during the new location work last summer generally included an office force of from six to eight men, one or two transit parties, two or three level parties, a chaining party and several topography parties. Through careful planning of the survey, all of the men were, in this manner, effectively employed in contributing toward the rapidity with which the work was completed. All notes taken in the field are neatly kept in regular bound survey note books, which are turned in nightly to the office force for keeping maps and office notes abreast of the field work.

In the 1928 camp, which came to a close on September 8, there were 43 students, representing 13 colleges, Rensselaer Polytechnic Institute and Worcester Polytechnic Institute leading with 11 students each. The other institutions represented included Brown University, Hartwick College, Hobart College, Lafayette College, Niagara University, Northeastern University, Rose Polytechnic Institute, Rutgers University, the University of Illinois, the University of Rochester, and Upper Canada College. Practically all of the men in the camp were third and fourth year students pursuing college courses leading to a degree in engineer-

dents who have satisfactorily participated in the camp have been given credit for the work by the engineering departments of their respective institutions, as one of the courses leading to the degree they are trying to obtain.

Students Get Practical Experience

Aside from this advantage to the students, is the fact that the 1928 camp afforded them an opportunity for practical experience which is seldom equaled in their college course or on the railways themselves. Active practice rarely permits the organization of such a large group of men into one survey party, all working toward the same end. Such a party, however, permits the separation of the many complicated movements of a railroad location survey into those of individual actions, all going forward at the same time. Through this, each student see the relation of each phase of the work to the survey as a whole, and at once becomes familiar with all parts of the survey. With this comprehensive view is afforded also the opportunity to study the merits of a large organization which has been carefully planned so as to keep each man actively and efficiently employed. That the men recognize these advantages, together with that of the wholesome outdoor life which it affords, is evidenced by the fact that many of the men continue to attend the camp from year

to year so long as they are eligible, and that for the last two years, the D. & H. has received more applications for attendance in the camp than it could accept.

While, as stated at the outset of this article, the original motive behind the organization of the summer student camp was not primarily that of gain to the railway, succeeding years have proved that the camp of student engineers has been practical and, it is believed, a paying proposition. In the first place the grade of work accomplished has been equal, and in many cases, superior to that which is turned in ordinarily by the average small survey party. Then too, the work has been accomplished in a much shorter period of time than it could have been by the ordinary survey party, a fact which may assume large importance in some instances. This was clearly demonstrated in the D. & H. camp of last summer, which successfully completed in two months, work which it is estimated conservatively would have taken the ordinary location survey organization of 10 to 13 men, from eight to nine months. Furthermore, the camp organization permits the keeping of the survey office work up to date, through which the necessary maps and profiles are completed within 24 hours of the field work.

To these factors which favor the summer survey camp, is added that of the reduced cost of the work,

which is effected in spite of the large number of men employed in the camp. This is due primarily to the considerably smaller salary which is paid to each student engineer, and to the lesser amount of time which their larger organization requires to complete any particular piece of work.

In still another respect the camp has been of benefit to the D. & H.; that is, through the opportunity which it affords to the road to select for its permanent engineering organization, technically trained men who have shown ability and aptitude for railway work. That this opportunity is considered of importance and has been taken advantage of, is seen in the fact that three of the students who were in the camp in 1927, and who were graduated in June of last year, were given permanent positions in the engineering department of the company, one at Carbondale, Pa., another at Oneonta, N. Y., and a third at Plattsburg, N. Y.

The conduct of the D. & H. camp, and all of the survey work was under the general supervision of J. MacMartin, chief engineer, and under the direct supervision of W. H. Adey, office engineer, to whom we are indebted for the information contained in this article. At the camp during the summer of 1928, H. J. Langlois, assistant engineer, was in general charge, assisted by F. W. Phear, who was in charge of field parties, and D. C. Greer, who was in charge of office work and computations.

Passenger Traffic Men Must Create New Business *

Service, advertising, and salesmanship are factors that can aid in stemming declining revenues

By Charles A. Cairns

Passenger Traffic Manager, Chicago & North Western

"**P**ASSENGER Business Was Off The Entire Year." How we men charged with the responsibility of the development of passenger traffic wish it were otherwise—that the tell-tale red ink figures could as if by magic be turned into permanent black as they were in the good old days before the advent of the automobile and when we always looked for a normal increase of at least 10 per cent over the earnings of the previous year. Have those bonnie days gone forever? Will they ever return to lighten the burden of the passenger man who is now struggling under so heavy a load? Certain it is that this cannot be done by mere waiting and wishing, nor perhaps not even by intense application of effort. Gone are those happy days when we had no automobiles or busses to disturb our tranquil dreams and when the thought of transportation by air never caused a sigh. It is now clearly up to passenger traffic men to devise ways and means to create new business—to make rail transportation still popular with the traveling public or we shall see a continued repetition of what we are

now experiencing from year to year. To aid in stemming the downward tide of earnings there are three prominent factors, to my way of thinking, that stand out boldly in relief, pointing the way, viz, "Service, Advertising and Salesmanship."

"Service" you must have to encourage and merit patronage. "Advertising" you must do, in one form or another, to attract attention to the advantages of your service. Expert "Salesmen" you must or should have, to follow up the interest developed by your advertising and also to dispose of your transportation, for that is the only commodity the railroad has to sell.

On our railroad, during the past few months especially, we have had striking examples of the co-ordination of this trinity—"Service, Advertising and Salesmanship." Last August we placed the "North Western Limited" and the "Corn King Limited," in operation and with this modern equipment have rendered improved service to our patrons.

Our next step was to advertise. So we set about to see how this could best be done to get the service prominently before the public and especially our good friends, the passenger and ticket agents. Immediately preceding the initiation of the service we placed the

* Abstract of an address before the Toronto Passenger Club at Toronto, Ont., on April 16.

complete trains on display at important terminal cities. Naturally we used printers' ink liberally in the daily papers, and supplemented all this manner of publicity by various follow-up methods, one of which was attractive so-called "personalized" mailings with the names of the recipient ingeniously printed in spaces on the face of the circulars. This we found struck a very popular chord.

We are now up to the last and very important subject in our text—salesmanship. We are told this is the age of electricity, but to our way of thinking salesmanship as much as any other one factor holds the attention of the business world today.

Salesmanship is an art, and in no line of business is it more needed than in the sale of railway transportation. I often wonder in dealing with this important subject if those of us in authority give as much personal attention to the education of young men desiring to become salesmen as we should. Is the young man, whom you take into your office as a beginner, not only encouraged but required to study his tariffs and to read the literature so attractively put out so as to enable him to readily give reliable information and make a better sales talk on many of the subjects with which he is daily confronted? Above all else is he encouraged to take an interest in his work and try to make himself of value to his company as an expert salesman of transportation?

Many adult travelers, intelligent and capable in every other way, are a good deal like children when it comes to traveling. Some are fussy and changeable and need the assistance of an experienced person to pilot them on their way to satisfactory conclusions regarding their trips. I think we are all agreed there is no better advertisement for your office or your line than a satisfied passenger.

Public Has Right to Demand Efficiency

The traveling public is exacting and has a right to demand that our men be most efficient in their profession and that the information we give out in our offices be absolutely correct or otherwise many annoyances, discomforts and serious consequences are apt to arise. Carelessness must be tabooed and I know we all aim to have this word left out of the railroad vocabulary.

Women are an increasing factor in controlling the purchase of tickets and the selection of tours. The manager of the department of tours of the Chicago & North Western and the Union Pacific estimates that 70 per cent of the purchase of his tours is controlled by women. Statistics show that 65 per cent of the people traveling from the United States to Europe in 1928 were women and that 82 per cent of such travel during last July and August was made up of women. A check made by a large British tour agency showed that for England, Scotland and Wales in June, 1928 the average American family touring the British Isles was three persons and, furthermore, that 80 per cent of these were women.

Only last February on a world's cruise from New York 91 per cent of the passengers were women. A recent tourist agency bulletin contained this advice to its salesmen: "Devote little time to the man of the house but direct 80 per cent of your solicitation to the women." We have all noticed that the Pullman Company, in its new equipment, is providing larger lavatories for women and decorating the parlor and observation rooms in a manner that will appeal to their feminine patrons. Are we all alive to

these facts and is our solicitation directed accordingly? If not, we are out of step with the changed conditions.

The airplane is a lusty young competitor for passenger traffic and we are to hear more of it and sooner than many of us now think. Strenuous efforts are being made to educate people to become air-minded. As soon as improved methods are developed and a better understanding and control of air currents and conditions make it safe to travel by night, it will be no trick at all to make an air journey from coast to coast inside of 30 hours. The cost will also be lowered when the volume of travel increases. At the present time the cost of maintenance is approximately 10 cents per mile. It is hazardous to predict but I believe that we shall never see everybody deserting the railroads to travel by air. There will be many improvements in rail transportation. Diesel engines, electricity, and, perhaps other means of power will supplement the use of steam. Oil or other substitutes for coal may take the place of fuel, grade crossings will be eliminated, schedules reduced and the comforts and conveniences of rail travel increased, and in the final analysis it will be found there will be enough business for all kinds of transportation either by land, sea or air.

While it is very discouraging to see the passenger traffic on our railroads decrease month after month and the short local travel practically disappear with little or no hopes of ever coming back, we may reach a time when this decline will be stabilized or overcome. Yet, when we take into account the freight revenue received from the transportation of raw materials, such as ore, steel, lumber, oil, gasoline and other products that enter into the manufacturing of automobiles, buses, trucks and airplanes, the use of which are the principal causes for the decline in passenger revenue, and also the large freight revenues that are received for the handling of material and machinery required in the building of new roads, these earnings, all combined, will show an increased net for the railroads that will more than make up for any loss in passenger revenues and this situation will undoubtedly continue for many years to come.

Therefore, with this knowledge to somewhat relieve the tension, but without relaxing our efforts to successfully stem the tide of adversity, let the passenger men not get faint hearted or become weary in well-doing. There can be no standing still—the march of progress keeps sweeping us on and on and ever onward and, let us hope, to a better day.

* * *



On the Milwaukee at Milwaukee, Wis.

Locomotive Design for Switching and Yard Service*

Quick movement of cars through classification yards is partly dependent on sufficient tractive force

By H. S. Vincent

Franklin Railway Supply Company, New York

WITHIN the past five years, increasing attention has been given by responsible railroad officers to the design and efficient operation of classification yards and switching facilities, as they have recognized that capital expended in this way gives operating economies, which can not otherwise be obtained.

The introduction of the hump yard some years ago, constituted a great advance over flat switching, and paved the way for that most modern improvement—the retarder system—which is giving such significant economies in yard operation. Yard engineers have devised systems of flood lighting which have greatly improved the efficiency of the night tricks. They have also put the radio and teletype to work in speeding up car movement. These radical improvements in yard operation have practically eliminated the “neck of the bottle” in securing rapid transportation.

One of the most important elements of a successful yard is the locomotive. It was quite the fashion at one time to convert obsolete road power into switchers, but such switchers rarely overcame their handicap of obsolescence. Classification in the majority of small yards is still handled by flat switching and the 0-6-0 or 0-8-0 type locomotive is utilized for this work. For the most efficient results, when the design of the yard permits, the locomotive should be sufficiently powerful to pull a train as it is brought into the receiving yard by the road locomotive, without the necessity of breaking it into cuts. In the operation of hump yards, the classification of solid trains requires locomotives with high tractive force. Some yards are using the 0-10-0 or a Mallet type locomotive in this service.

Number of Switching Locomotives In Use

The relative importance of switching power to total power in use by the railroads is not generally realized.

* Abstract of a paper presented May 9, 1929, at Buffalo, N. Y., before the Central Railway Club.

The Interstate Commerce Commission compilation for 1927 indicates that in the eastern district, switching locomotives constitute 20 per cent of the total number of locomotives in service and these furnish 17 per cent of the total tractive force.

In the southern district, the proportion is switching locomotives, 15.4 per cent and switching tractive force, 13 per cent. In the western district it is switching locomotives, 15.8 per cent and switching tractive force, 12.5 per cent. For the same year the switching mileage was 23.4 per cent of the total mileage made by all locomotives.

The fuel consumed for the year 1927 by switching and yard locomotives as related to that consumed for all locomotives is as follows:

Eastern district	19.4 per cent
Southern district	15.0 per cent
Western district	14.7 per cent
Total	16.7 per cent

These statistics apply to Class I railways only.

A large eastern road has a total of 3,300 locomotives, of which 813 are switchers, principally of the 0-6-0 and 0-8-0 type. The switchers on this road, therefore, represent 24.8 per cent of the total number of locomotives and 20 per cent of the total tractive force. These statistics indicate the importance of giving close attention to the design and operation of a road's switching power, as slackness in this department adversely affects the earning power of the road.

When new switching power is required by a railroad, it is too often the practice to duplicate existing designs even though they have been in service for many years with little alteration. In other words, standardization and low initial cost are the major considerations, rather than maximum efficiency of operation. It often develops that the industrial companies, such as mine operations and steel mills, give more consideration than do many railroads to securing the maximum efficiency



Seaboard Air Line Switcher Built with a Maximum Cut-off of 65 Per Cent

from their locomotives. This undoubtedly is because they use locomotives only in switching and transfer service.

Any one who keeps in touch with developments in locomotive design will have noticed the relatively recent tendency to apply to switching and yard locomotives most of the refinements in design which one normally associates with road locomotives. I refer to the use of feedwater heaters, syphons, front-end throttles, power reverse gears, and even stokers. The reason for these appliances becomes apparent when one considers the efficiency in operation demanded and the proportion of the fuel cost which is charged to this class of power.

Limited Cut-Off

One of the major improvements in design and one directly affecting both fuel economy and efficiency of operation is the limited maximum cut-off.

It is well known that yard and switching locomotives operate the majority of the time with the reverse lever in the corner. The usual length of run is not sufficient in the opinion of the average engineman to warrant using a shorter cut-off, except possibly in transfer service.

If we take as an example a switching locomotive having 25-in. by 28-in. cylinders, 200 lb. working pressure with 90 per cent maximum cut-off, giving a nominal tractive force of 58,000 lb., we may, by increasing the pressure to 220 lb. and limiting the maximum cut-off to 65 per cent of the stroke, obtain the same nominal tractive force and save 22.5 per cent of the fuel. There will be an additional saving from the use of steam of a higher pressure.

Both of these locomotives would operate with the reverse lever in the corner, both would do the same work, but the limited cut-off engine would save approximately 25 per cent of the fuel and water.

To further illustrate the advantage of using the limited cut-off principle, in the upper diagram at the right of the chart is shown a U. S. R. A. standard eight-wheel switcher of which there are a large number in operation. The left diagram represents this locomotive converted to a limited cut-off; the only changes involved are an increase in boiler pressure of 25 lb. and a consequent increase in the weight of the locomotive of 5,500 lb.

The tractive-force and horsepower curves shown by the dotted lines represent the existing engine and by the full lines the increase in tractive force and horsepower effected by the change in cut-off and pressure.

In the lower section of the diagram, the dotted line represents the steam used by the cylinders for the existing engine and by the full line that flowing to the cylinder with the limited cut-off. The former reaches

the capacity of the boiler at approximately 11 m. p. h. and the latter at 17 m. p. h.

The dot-and-dash line gives the percentage of steam saved by limiting the cut-off, this being nearly 30 per cent at 2 m. p. h. and 18 per cent at 12 m. p. h., which is about the operating range of speeds for this type of locomotive.

It is difficult to obtain an accurate record of the fuel used in switching and yard locomotives per unit of work done. The records of the Interstate Commerce Commission for the year 1927 show that one of the largest eastern roads expends for fuel in switching and yard service \$114.40 per 1,000 lb. of tractive force. Another large eastern road, using about the same grade of fuel, expends \$233.70 per 1,000 lb. of tractive force. It is evident that there is a great variation in the method used by these roads in charging fuel to this class of locomotive for no one would imply that the locomotives of one of these roads were only half as efficient as those of the other.

It is for this reason that it is sometimes very difficult to make an accurate analysis of the actual saving in fuel in service that results from the use of a device, even though theoretical calculations and test plant results show that such saving is clearly obtainable.

Taking for example the limited cut-off principle, it is certainly apparent that with the cut-off fixed at, say 65 per cent of the stroke, less steam will enter the cylinder than would be the case were the cut-off 90 per cent, even though steam of somewhat higher pressure is used with the shorter cut-off. Therefore, this difference in the weight of steam entering the cylinder per stroke is the measure of the saving in fuel and water which must result. If the records do not show this saving, so much the worse for the records.

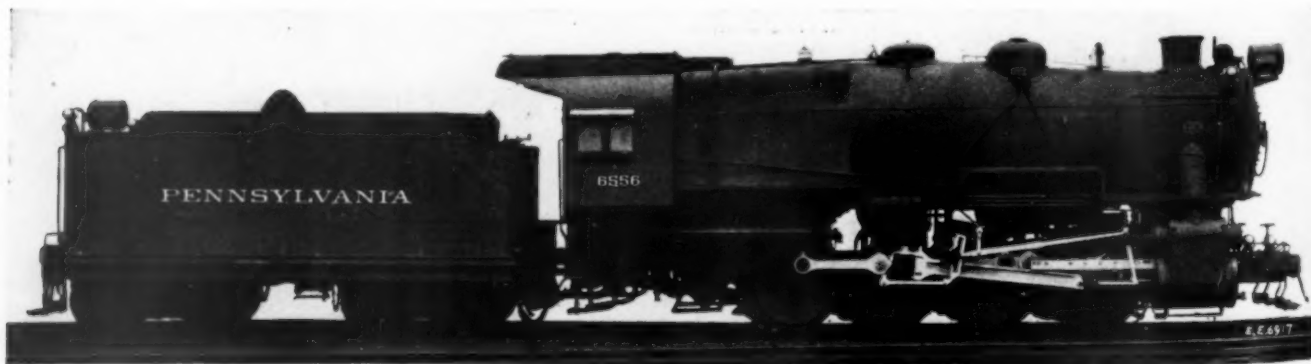
Among the roads which apparently keep an accurate record of the performance of their switching locomotives is the Seaboard Air Line. From available data, this road has 101 switchers of the 0-6-0 type. Fifty of these locomotives, their class F-7, were built with a maximum cut-off of 65 per cent.

The first of these engines were received about the beginning of 1927. Prior to the receipt of the new locomotives, the road was using the U. S. R. A. standard six-wheel switchers, their class F-5.

The principal characteristics of the two classes of locomotives are as follows:

	F-5	F-7
Cylinders, diameter and stroke.....	21 in. by 28 in.	23 in. by 28 in.
Boiler pressure	190 lb.	205 lb.
Wheel diameter	51 in.	51 in.
Maximum cut-off per cent	90	65
Nominal tractive force	39,100 lb.	46,000 lb.

As a practical test of the fuel consumption of the two locomotives in the same service, the record of the



Pennsylvania Eight-Wheel Switcher which Operates with a Maximum Cut-off of 60 Per Cent



An Eight-Wheel Switcher with Limited Cut-off and a Tender Booster

class F-5 for the months of February and March, 1926, was compared with that of class F-7 for the same period in 1927, with the following result:

Class	Locomotive miles	Tons coal	Pounds of coal per locomotive mile
F-5	11,310	683	120
F-7	14,546	772	106

On the basis of equal power, the class F-5 would have used $\frac{120 \times 46000}{39100} = 141.25$ lb. fuel per locomotive mile and the relative economy by limiting the cut-off is $\frac{141.5 - 106}{141.5} = 25.1$ per cent.

A more recent fuel test was made in December, 1928, resulting as follows:

Class	Lb. coal per engine mile
F-5	121
F-7	98

On the basis of equal work, the fuel consumption of the F-5 would have been $\frac{121 \times 46000}{39,100} = 142.5$ lb. per engine mile, giving an economy for the class F-7 of $\frac{142.5 - 98}{142.5} = 31.2$ per cent, which is somewhat better than the previous test.

Probably the engineman and fireman had become more familiar with the operation of the locomotives.

The limited cut-off locomotives were built on two orders, the first 25 were delivered in February and March, 1927, the second 25 in February, 1928. Comparing the calendar year 1926, when no limited cut-off locomotives were in service with the calendar year 1928, when 25 were in service for the entire year and 25 for ten months, the operating results were as follows:

	Calendar year 1928	Calendar year 1926	Increase Amount	Per cent
Cars handled per yard-engine hour (all yards)	18.8	16.5	2.3	12.2

When one considers that the limited cut-off locomotives constituted only a part of the power required to operate these yards, the increase in capacity becomes significant.

The Locomotive Booster

Another feature, which is being rather widely incorporated into the design of switching and yard locomotives, is the locomotive booster applied to the forward truck of the tender.

The first application to engines in switching service was made in January, 1926, to two eight-wheel switching locomotives built by the Baldwin Locomotive Works for the Texas & Pacific. These locomotives were immediately placed in helper service in assisting full ton-

nage trains out of the Baird yard, over grades from two to four miles in length. The starting tractive force of the locomotives is increased 15,000 lb. by cutting in the booster. A large part of this increase in power is available at the operating speed on the hill.

The Portsmouth terminal is one of the largest terminals on the Norfolk & Western. It has recently undergone an extensive program of enlargement and improvement. The Scioto division of this road extends from Williamson, W. Va., to Portsmouth, Ohio, a distance of 113 miles, with a level grade. This division is operated with Mallet locomotives of the 2-8-8-2 type, railway class Y-3, which can handle 9,500 tons in approximately 95 cars, into the Portsmouth terminal, westbound. All of these trains are weighed and classified over a two-track hump, located about midway of the terminal.

Traffic is heavy on this division. As many as 2,500 cars have been received in a 24-hour period, which makes a speedy handling of the trains necessary.

It has been the practice to limit these trains to 75 cars or 7,500 tons coming from Williamson, and in addition, it was necessary to employ a helper engine to assist the hump engine in taking these trains over as a unit. This proved a costly as well as an unsatisfactory switching operation. The class of engine used in regular hump service was of the same type as used in road service, and has the following characteristics:

Type	2-8-8-2
Cylinders	25 in. and 39 in. by 32 in.
Boiler pressure	240 lb.
Diameter of drivers	57 in.
Nominal tractive force	107,373 lb.

The grades in the hump yard vary from level to 3.1 per cent for a distance of 520 ft.

To start the portion of the train on the hump requires 74,600 lb. tractive force and the balance of the train located on level track requires a force of 54,100 lb., making a total of 128,900 lb. required to start a train. This could only be accomplished by employing a helper engine, a Consolidation type being used for the purpose.

To improve this operating condition, the railroad applied two Franklin reversible boosters, one to each tender truck. The characteristics of the locomotive receiving this application are as follows:

Type	2-8-8-2
Cylinders	25 in. and 39 in. by 32 in.
Boiler pressure	240 lb.
Diameter of drivers	56 in.
Tractive force	109,272 lb.

The dual booster application was completed in March, 1928, and this engine has since been in continuous hump-yard service, working 15 hours during a 24-hour period daily. The performance has been excellent. The tonnage on incoming trains has been increased from 7,500 tons to 9,500 tons.

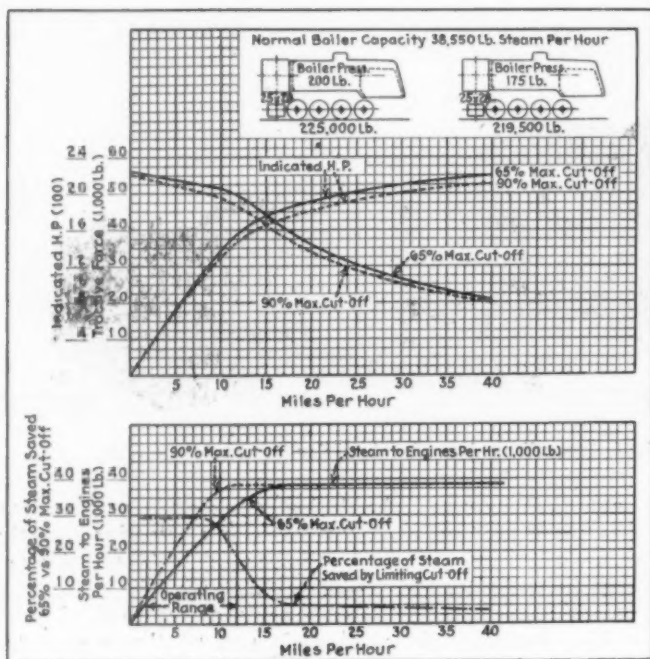


Chart which Shows the Advantages of the Limited Cut-off in Switching

For the purpose of determining the capacity and the time required to switch and weigh a train, a series of tests were made, the result of which is as follows: A train of 127 cars, 10,336 tons, was handled as a unit without taking slack. This train was weighed and classified from a standing start in 33 minutes.

The three engines equipped are working 16-hour shifts out of a 24-hour period, and the maintenance cost of the boosters, including the cost of the oil used, has averaged less than one-third cent per mile.

Booster Provides Reserve Power

One of the major reasons for applying the booster to switching and yard locomotives is that it provides reserve power when needed, which could otherwise only be secured by building a more powerful locomotive. This may not be feasible because of wheel-load limitations and excessive standby losses. In the case of one road, yard limitations made it imperative to use an 0-6-0 type of switcher, but with their wheel-load limitation, it was impossible to secure enough tractive force to handle the trains brought in by Mikado locomotives. The application of a reversible booster to the tender truck gave the necessary reserve tractive force without increasing the wheel load.

The question, which naturally suggests itself is why incorporate a booster in the design of a new locomotive rather than build the locomotive to give the additional power? This is answered in the preceding paragraph with regard to weight limitation on drivers. Another cogent reason is that in the majority of cases, the maximum power of the switcher is needed only occasionally and should the locomotive be designed for its maximum power requirement, the standby losses and the losses in fuel when working at less than its normal rate would be increased. The reduction of these losses and reduced maintenance is the goal set by all railway operating officers.

The increased efficiency of the modern yard has contributed not a little to the higher average speed of freight trains. The locomotives by improved accelera-

tion and increased operating radius have served to speed up the service. Both the limited cut-off and the booster are factors in improving the acceleration. The former, by providing either larger cylinders or higher pressure, enables the locomotive to pick up speed much quicker than does a full-stroke engine. To obviate any hesitation in starting, it is recommended that the maximum cut-off be not less than 65 per cent.

The force to produce acceleration is the surplus power above that required to move the train against the normal resistance. The booster not only provides surplus power to start the train, but this power is available to provide a surplus to accelerate the train up to its operating speed. This is especially important in switching service where many starts must be made and where the capacity for rapidly getting the train up to normal speed reduces the switching time.

Increasing the operating radius means keeping the locomotive on the job more hours per day. Replenishing the fuel and water supply takes from the earning time. This may be remedied in two ways; (a) by providing larger water and fuel capacity, and (b) by decreasing the amount of water and fuel used per unit of work. The latter method is the more logical as it releases useful drawbar pull, which would otherwise be required to move the large water and fuel supply.

The limited cut-off switcher, by producing a horsepower for 30 per cent less steam, makes the huge tank and coal box unnecessary, and accomplishes this desired end without mechanical complication and with no increase in the cost of maintenance.

* * *



New Canadian Pacific Hotel at Toronto, Ont., Which Will Be Opened June 11

Rock Island Runs School

For Storekeepers

Attacks man-power problem by putting younger men through apprentice course in supply work



A Classroom in Storekeeping

RECOGNIZING that in railway storekeeping it is one thing to create a department to handle the work and another thing to have it function efficiently, that the methods are of little value without men qualified to follow them and that instructions fail when not understood, the Chicago, Rock Island & Pacific stores department started a course of training for its younger men several years ago that would assist in getting a preferred type of employee for the department, prepare them to carry out its functions more thoroughly and economically and provide its future leaders.

It had become apparent that there was an increasing need for something of this kind in the department. The

operations of unloading cars of material, putting it on shelves or platforms and delivering it when required, did not constitute so much of a problem in this respect, but there was a desire to have those in the department become thoroughly familiar with the mass of details involved in the work. With seniority rules governing promotions, moreover, it was considered particularly important to harmonious and efficient work that the man who, by his seniority, is next in line for a new position, shall have been prepared by training to handle that work. Since its applicants do not come to the stores department already schooled in the technique of storekeeping, but are usually boys or men who are in search of work and who at the outset have no fixed intention to remain in the department, the department felt that it should assume the responsibility of fitting them for the work by special training.

The plan was put in effect in 1912 in the form of an apprentice system after a study of the apprentice system in the mechanical department and a consideration of stores apprentice methods tried on a few other roads. The plan permits of ten apprentices at the general store and five at three of the district stores, making a total of 25 that are being groomed for better jobs at all times. These apprentices are chosen from persons who have made application to the district storekeeper, the Rock Island's regular application form for employment being used for this purpose. To be a candidate, the applicant



The General Storehouse of the Rock Island at Silvis, Ill., Where Apprentices See Small Materials Handled and Learn Office Practice

must be of good character, have at least a common school education and be over 16 years old. Where several applicants are available when a vacancy occurs, it is provided that applications from employees are to be given preference.

The apprentices are required to serve a term of two years of 300 days each, during which they are given the opportunity to learn as much about the storekeeping business as a whole as possible. The usual apprenticeship consists of about six months' service in the office as messenger in handling the mail, etc., and then several months' service in the various departments in the outside storeroom. While employed in the storerooms, apprentices assist the stockmen and perform various other duties coming under the jurisdiction of stockmen, but they are not assigned permanently to any work ordinarily done by higher rated employees. During the period of training, they are kept under observation by the storekeeper and are taught courtesy, neatness, accuracy and carefulness, as well as the mechanics of material handling and stores operation; and at all staff meetings, which are held periodically in the stores, it is the practice to have one or two apprentices present. Periodic meetings are also held with all apprentices, at which talks are given on the cost of carrying material, depreciation and obsolescence, stock control, unit piling, etc., so at the completion of the two years' apprenticeship, each will have a fair working knowledge of stores department methods.

During this period, the apprentice is paid a graduated salary, based upon the material handler's hourly rate, as follows:

First six months of apprenticeship, material handler's rate less four cents per hour;

Second six months of apprenticeship, material handler's rate less three cents per hour;

Third six months of apprenticeship, material handler's rate less two cents per hour;

Fourth six months of apprenticeship, material handler's rate less one cent per hour;

Graduated apprentices, regular material handler's hourly rate.

At the completion of the apprenticeship, a certificate is given to the graduate, which is a notice to all concerned that the apprentice has completed a course of instruction in storekeeping. The graduated apprentice is not assured immediate promotion because there may be no vacancy at the time for him to fill, but it is understood that they will be considered for clerkships, and for positions of stockmen and foremen and shall be given preference when these positions are filled. Seniority for apprentices starts from the date of their employment as apprentices, and when promoted to clerks, foremen or stockmen, they are given credit for the seniority accumulated as apprentices.

The apprenticeship training has fulfilled expectations. The plan withstood the period of federal control when it was difficult to maintain training courses, and today the course is more popular than ever, there being no difficulty at present in securing candidates with a high school education. At present, there are 15 stockmen in charge of the storeroom work at the general store at Silvis, Ill., and of this number, nine are graduate apprentices. The office force has also been recruited from this source and several of the graduates are now filling positions at different points as local or divisional storekeepers, while several have proved eligible for good positions in other departments of the railroad. In no case have the graduates been known to have regretted the training received and the stores officers are satisfied that the department has profited greatly from the introduction of this plan in its operation.

A. E. Clift Addresses the Boiler Makers' Association

THE twentieth annual convention of the Master Boiler Makers' Association opened at the Atlanta Biltmore Hotel, Atlanta, Ga., on May 21 with a registration of 200 members, 125 representatives of supply companies and 150 ladies and guests.

Following the customary opening exercises, the association was addressed by A. E. Clift, president, Central of Georgia, who pointed out that the entire operation of the railroad is centered around the boiler and then proceeded to discuss the place of the steam railroad among all of the other commercial transportation agencies which have recently been developed. This session also included the address of the president of the association, L. M. Stewart, general boiler inspector of the Atlantic Coast Line, and the routine business of the association. On Wednesday and Thursday the association was addressed by F. S. Robbins, superintendent motive power and machinery, Florida East Coast, and O. A. Garber, chief mechanical officer, Missouri Pacific, respectively.

At a special session on Wednesday the Master Boiler Makers' Association entertained the Southern and Southwestern Railway Club. The joint meeting was addressed by L. R. Powell, president, Seaboard Air Line, and A. G. Pack, chief inspector, locomotive boilers, Interstate Commerce Commission. These addresses were followed by a moving picture and lecture on the failure of steel boiler plates, causes and suggested remedies, by H. L. Miller, metallurgist, Central Alloy Steel Corporation.

An abstract of Mr. Clift's address follows. A more detailed account of the proceedings, including the election of officers, will appear in a later issue.

Mr. Clift's Address

Improvements to locomotives must precede rather than follow other improvements to the railroad plant. The whole theory of operation of the steam railroad is centered around the boiler, for without adequate boilers it is impossible to have a steam railroad.

We must not overlook improvements in other forms of transportation. I believe there is room for all three forms of transportation—railroad, automobile and aeroplane—because each has certain definite advantages. But I also believe the railroad will continue to be the backbone of this country's transportation system. Railroad men need never fear for the future of their industry as, in my opinion, while the automobile and the aeroplane, as well as the barge line, can supplement, they can never replace the railroad. Consider the advantages of the railroads to the shipper and traveller. It offers the greatest possible safety, continuity of service and permanency of schedules.

The railroad continues to operate under weather and climatic conditions that make dangerous, or impossible, the operation of aeroplanes, automobiles or bus lines. The railroads' advantages of speed, reliability, independence of weather and economy of operation assure their remaining for a long time to come the principal means of getting freight from place to place.

I believe eventually that passenger traffic will be divided among the automobiles, the aeroplanes and the railroads—automobiles for those moving relatively short distances, the air line for those demanding great speed, and that the railroads will continue to handle the great majority who value the comfort, convenience, safety and protection which the railroad affords.

Can One Judge the Speed of a Freight Car Accurately?

New York Central switching tests to analyze rough handling show need of continuous education

By J. J. Brinkworth
Superintendent, Ohio Division, New York Central

IN speed tests, conducted by a sub-committee of the Loss and Damage Prevention committee of the Ohio Division of the New York Central, Ohio Central Lines, in various terminals to analyze rough handling and damage to freight it was found that the average employee engaged in switching service must have continuous education in order to know how fast a car is traveling after being released from the yard

locomotive during switching operations. During these tests, which were held in five different yards, employees were directed to judge the speed of a car at the time it was released from the locomotive and to determine how fast the car should travel when released, to reach a speed of four, five, six or eight miles per hour after moving a certain distance. The guesses and estimates of the men were compared with the actual speeds, which

were determined by torpedoes and a stop watch. The results disclosed in the tests, prompted the sub-committee, which consisted of A. E. Winzenried, general car foreman; D. W. Taylor, chief of police; J. N. Jones, road foreman of engines; G. A. Stuart, trainmaster, and the trainmasters, general yardmasters and road foremen of engines of the various terminals, to carry its investigations still further and determine what other human shortcomings cause rough handling.

The committee, in determining the cause for improper car handling in terminal yards, developed the fact that in many cases a lack of speed knowledge is the cause of rough handling. This is in contrast to the frequent practice of criticizing and censuring yard crews. It is the opinion of the committee that a coupling speed of four miles an hour for practically all commodities can be considered satisfactory for educational purposes. A few commodities, however, might require lower speeds. The interest taken by the yard crews that participated in the tests, indicated a willingness on the part of the men to co-operate with the management in developing and maintaining a switching policy which will eliminate unnecessary damage to equipment as well as commodities.

This conclusion led to the adoption of the following policy:

SIX ESSENTIALS — OF — PROPER CAR HANDLING



KICK CARS AT SAFE SPEED



BUT RIDE THEM ON DOWN GRADES



TRY YOUR BRAKE



KEEP 'EM MOVING—AVOID STOPS



SHOVE CARS TO CLEAR



EASY SIGNALING—SAFE COUPLING

NEW YORK CENTRAL RAILROAD COMPANY
FREIGHT CLAIM PREVENTION BULLETIN No. 42

Poster Used in Rough Handling Campaign

First: Eliminate any apparent uncertainty in speed requirements by educating the yardmen as to the approximate speed necessary for the safe handling of loaded as well as empty cars. This is now accomplished by posting speed schedules on all bulletin boards and in all switch shanties, so that the men can secure a definite indicator. The schedule is based on a distance of 200 ft. or approximately six rail lengths. From it, the speed of a car can be determined by ascertaining the amount of time the car will consume in traveling the prescribed 200 ft. The men have responded favorably as a result of this practice.

Speed Schedule Posted on Bulletin Boards and in Switch Shanties

Car Traveling 200 ft. in	10 Seconds is Moving	13.6 Miles per Hour
11	12.4	
12	11.4	
13	10.5	
14	9.7	
15	9.1	
16	8.5	
17	8.0	
18	7.6	
19	7.2	
20	6.8	
21	6.5	
22	6.2	
23	5.9	
24	5.7	
25	5.5	
26	5.3	
27	5.1	
28	4.9	
29	4.7	
30	4.5	
31	4.4	
32	4.3	
33	4.1	
34	4.0	
35	3.9	

Second: Make it the duty of all yardmen to familiarize themselves with the schedule so that they will be in a position to meet the switching requirements for safer operation and the prevention of improper car handling, which the committee feels can only be accomplished by having a true knowledge of speed conditions.

Third: Hold occasional speed tests in the various yards for the purpose of determining whether all yardmen are benefited by the knowledge received from a study of speed requirements.

The committee felt that with this policy all men will realize that their supervisory officers are familiar with actual speed requirements and, as this knowledge of speeds is easily accessible to all employees, there are few excuses, other than carelessness, when improper car handling and damage occur. In addition, it was presumed that beneficial results will be derived from the policy, since, throughout the course of an educational campaign of this nature, a considerable amount of interest is developed among practically all employees involved.

Specific Instructions Desirable

In its further investigation, the committee discovered the desirability of issuing some specific instructions on the subject of yard switching. As a result the following rules for the guidance of trainmen, enginemen and yardmen, in switching, some portions of which appear in other rules, were put into effect and were posted in yard shanties:

1. Discontinue the practice of giving violent signals when switching, except in cases of extreme emergency, or when necessary to avoid an accident. Move locomotives and cars in switching so that violent signals will not be necessary.
2. Use the caution signal before giving the final signal to stop so that the slack may be bunched by the weight of the locomotive before the air is applied.
3. Shove or ride all cars carded "fragile" when being placed on an occupied track with insufficient room to hold them without striking. Explosive rules will cover the handling of explosives. Shove all live stock, also traction engines, vehicles,

etc., that are loaded on open cars, to rest. Protect such cars when placing other cars against them.

4. When switching, discontinue the practice of applying the brakes fully in emergency and of holding them set until the slack in the cars being handled is bunched or stretched unless such action is necessary to avoid an accident.

The committee also learned the necessity for proper hand signals. It found a number of cases where incomplete or "home-made" hand signals, which could be misunderstood by the locomotive crew and which might result in rough handling, were used. Consequently, the committee believes that too much stress cannot be laid on the importance of a thorough understanding by all switching crews that standard hand signals must be used in all cases.

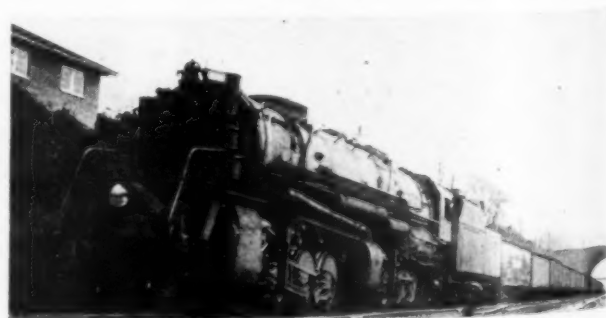
Following the work of the committee, the road during October, November and December, 1928, conducted a special campaign for proper car handling. Posters, emphasizing six essentials for proper car handling, were placed in conspicuous locations where they could be seen by the men actually handling the cars. These essentials included: (1) Kick cars at safe speeds, (2) But ride them on down grades, (3) Try your brakes (particularly on hump switching), (4) Keep trains moving, (5) Shove cars into clear, and (6) Proper hand signals and safe coupling.

The improvement in car handling which followed the investigation of the committee and accompanied the system campaign, was exceptionally gratifying. To insure its continuance, an official now conducts similar switching and speed tests in the various yards.

When the committee first began its work it realized that it would be confronted with practices and conditions of long standing, and therefore felt that it would be absolutely necessary, if beneficial results were to be obtained, to inaugurate and establish some system of educating employees in proper car handling which would be different than any heretofore suggested.

It is too early to judge the result of occasional speed tests or those of the proper car handling campaign during the last three months of 1928. However, it is felt that good results have been accomplished and claim payments for January, 1929, were \$20,000 less than for January, 1928. Satisfactory prevention progress has also been made. This is indicated by a comparison of the system figures with the last available figures for the country as a whole. During the 12-months period ending October 31, 1928, as compared with the 12 months ending October 31, 1927, unlocated damage and rough handling figures (which causes reflect mainly improper car handling) for the railroads of the United States and Canada show a reduction of 0.8 per cent while the New York Central shows a reduction of 12 per cent. The total loss and damage account for the country as a whole was reduced 5.4 per cent during this period, while the New York Central figures show a reduction of 10.9 per cent.

* * *



Norfolk & Western Freight Train at Bedford, Va.

Revision of Western Livestock Rates Proposed

Report of I.C.C. examiners under Hoch-Smith resolution recommends mileage scales

STATING that livestock in much of the western district "is not at present bearing its fair share of the transportation burden" but that increases proposed by the railroads have not been found warranted, Attorney-Examiner Chester E. Stiles and Examiner Arthur S. Parker of the Interstate Commerce Commission have recommended to the commission two mileage scales for the transportation of edible livestock throughout the western district. These, they say, are considered to be reasonable in the light of all the existing circumstances and conditions but, on the theory that livestock cannot be expected to do more than "pay its way," are intended to produce the cost of the service plus a minimum of profit.

Revision of the present rates on the basis of the scales is recommended in a 265-page proposed report in Part 9 of the commission's rate structure investigation, Docket No. 17,000, under the Hoch-Smith resolution, which draws general conclusions from a record of approximately 15,000 pages of testimony, 4,700 pages of exhibits and 4,000 pages of briefs. Exceptions to the report may be filed on or before June 17 and the proceeding is assigned for oral argument on July 10, 11 and 12 before the commission.

Finds Distance Scale Equitable

After a review of the record the examiners find that the distance scale method affords an equitable basis for making rates on a commodity which is as widely distributed as livestock and that but two rate levels are justified for the western district.

One table of proposed scales for the various classes of livestock is recommended for transportation between all points in the western district east of the Rocky mountains, another on a somewhat higher basis for application between points in the mountain-Pacific territory, and a scale of arbitraries to be added to the lower scales for interterritorial movements, in proportion to the distance in the higher-rated territory. The base scale recommended is a graded scale with four rates of progression in accordance with a method advocated by the Oklahoma commission for decreasing the rate of progression by using a fixed factor of gradation in cents and an increasing distance factor. Varying minimum weights are also proposed for various classes of livestock, differing in some instances in different parts of the territory. In addition to the general recommendations submitted, more specific findings are proposed as to some of the formal complaint cases which are combined with the general investigation proceeding.

After reviewing the evidence as to the financial condition of the carriers and their various proposals of scales designed to increase rates the report says: "While we are not unmindful of the fact that carriers in the western trunk-line territory, taken as a whole, have

not earned the fair return contemplated by section 15 (a), we have not found the proposed increases warranted upon the record in this investigation, but have prescribed a level of livestock rates considered to be reasonable in the light of all the existing circumstances and conditions."

As to the need for a revision of the present rates the report says:

Rate Uniformity Held Desirable

With interstate traffic moving in the western district under ten different rate scales prescribed or approved by this commission at various times and under numerous other rate bases initiated by the carriers and containing numerous inconsistencies which we can not herein take the time to describe, and intrastate traffic moving under various bases imposed by state authority, it has become evident through this inquiry that a much greater degree of uniformity in rates and practices can and should obtain. Unnecessary variety in rates and practices tends to create undue prejudice and preference, thereby imposing undue burdens or giving undue advantage as between the various localities and parts of the country, a situation which the law seeks to avoid. To determine the extent to which uniformity might reasonably be brought about was one of the leading lines of inquiry at the hearings, and to effect such uniformity should be one of our guiding principles in the disposition of this proceeding. Greater occasion for uniformity in rates and regulations exists in the case of a commodity which, like edible livestock, is shipped in considerable volume from every part of a vast territory, than in the case of commodities the movement of which is largely localized. The investigation is broad in scope, affording an opportunity for effecting a harmonious adjustment which has not been afforded in prior proceedings. Former cases, which have dealt only with parts of the rate adjustment, have necessarily been influenced by the whole as it existed. Here the entire structure may be, and the record establishes that it should be, remade.

Proposed Rate Levels

Much of the livestock moved in the western district, moves under the scales of distance rates, although frequently the rates so arrived at are published as specific rates. This method of making the livestock rates was upon this record almost unanimously accepted as a proper and satisfactory method, and all of the definite rate plans proposed in this proceeding are based upon that principle. In our judgment the distance scale method affords an equitable basis for making rates on a commodity which is as widely distributed as is livestock, fairly distributes the transportation burden, and tends to a desirable simplicity in the rate structure; but rigid adherence thereto should not be required where competition or other conditions produce a situation in which the interests of the shippers will be better served by rates not conforming strictly to a distance basis. Such situations are found to exist in some parts of the Western district.

After a consideration of the relation of traffic density to the rate level the conclusion is expressed that traffic density no more justifies a higher level of rates on livestock in the southwest as compared with western trunk line territory than it justifies a higher level of rates in valley territory as compared with plains territory; and that in so far as it has weight it tends to support the maintenance of a single rate level on livestock throughout valley and plains territory. Various cost studies which were introduced at the hearings were considered by the examiners.

Following are summarized some of the reasons why they find but two rate levels to be justified in the western district:

The greater diffusion of livestock than of any other commodity in the western district; the fact that livestock is more frequently offered at a single station in trainloads in plains territory than in valley territory; the fact that because the trend of movement of livestock is toward a focal point in the east where all livestock or its product tends to concentrate makes every shipper an actual or potential competitor of every other shipper to a greater extent than is true of any other widely produced commodity; the very slight difference between operating conditions in plains and valley territory; the general policy of the commission that in dealing with a broad, comprehensive and closely interwoven rate fabric, it is neither necessary nor practicable to reflect in the general rate structure all the differences in transportation, traffic, competitive and other conditions that affect particular movements; the fact that, although self-interest would line up the livestock shippers in valley territory on the side of maintaining different rate levels in valleys and plains territory, and those of the plains territory upon the side of maintaining a single rate scale, the interests of producers and feeders in the two territories are so interwoven that complete equality of rates throughout the territory east of the Rocky Mountains would seem to be most desirable and most beneficial to all shippers in the long run; the intent of the Hoch-Smith resolution to afford the greatest relief to those groups which have suffered most severely from the depression, which undoubtedly upon this record is the long-haul shipper of the plains and mountain-Pacific territories; and the intent of the said resolution to equalize the transportation burden as between the various shippers of livestock so as to promote freedom of movement, by placing the heavier end thereof upon the shoulders which are best able to bear it, which upon this record is undoubtedly shown to be the short-haul shipper.

It follows that uniform rate territories appropriate for livestock in the western district might not be appropriate for any other commodity.

The conclusions of the report regarding the condition of the livestock industry and its relation to the freight rate level are in part as follows:

Condition of the Industry

The recovery effected by the range cattle industry, though substantial, is not complete. There is still a considerable way to go before normal conditions will be restored. The outlook continues good, however, and the next few years should see nearly complete recovery. The cattle feeder has had more opportunity than the range man to catch up on his losses; current operations, if efficiently conducted, yield satisfactory results, though they tend to be on a smaller scale than normally.

The condition of the hog industry can be gauged on more of a short run basis. The years 1923 and 1926 were reasonably satisfactory, while 1927 and 1928 were clearly unsatisfactory. Conditions point to substantial early improvement.

The range sheep industry has yielded satisfactory average results since 1923, affording an opportunity to catch up on earlier losses and to effect a substantial return to normal conditions. It faces, however, the likelihood of somewhat diminished profits as the result of the large increase which has occurred in farm supplies of sheep and lambs. Wool prices have stood up well. The feeding of lambs has been characterized by fewer losses than the range end and is now generally in a satisfactory condition.

With testimony offered by or in behalf of the livestock producers indicating that a depression still exists in the industry, suggestions were made as to the manner of affording relief. Several inclined toward a 10 per cent reduction in all livestock rates and a recouping of the revenue loss to the carriers by increases in rates on other commodities. * * *

Purpose of the H-S Resolution

Agriculture, one of our great basic industries, is probably unique in that it can not set the price at which its product is sold with relation to the cost of production; the price it receives for its product is fixed largely by forces outside its control. Probably not until the industry is so reorganized by effectively controlling production that it acquires the same bargaining power in selling as those who buy its product will the problem of eliminating recurrent financial depressions be permanently solved. While it is the purpose of the Hoch-

Smith resolution to assist depressed industry to the full extent that minimum reasonable rate levels and properly distributed transportation burdens can do so, it was never expected by the Congress that that resolution would solve the entire agricultural problem; nor was it the intent of the Congress that any commodity, even though it be one produced by an industry suffering a financial depression, should be transported by the carriers at less than reasonable rates. A just and reasonable rate level is one that is justly and fairly related to other just and reasonable rates and that covers the cost of rendering the service and includes some profit to the carrier in the aggregate. The extent of that profit is generally determined by the well-known rule of "what the traffic will bear," which is largely controlled by the nature of the commodity and the distance it must move to find a market. Livestock, as we have elsewhere indicated in this report, is a commodity which from its nature can not be expected to do more than "pay its own way," that is, it can not sustain a rate level which will produce more than the cost of rendering the service plus a minimum of profit. Judged even by these standards, livestock in much of the western district is not at present bearing its fair share of the transportation burden; and under the rate levels herein recommended it will do more than meet these minimum requirements. Indeed there is room for doubt whether the rates recommended will, on sheep and hogs, single-deck, and, for the longer hauls of sheep and hogs, double-deck, and cattle, say above 1,000 miles, produce more than a slight margin above the actual cost of transportation. The importance of the freight charge to the shipper increases in proportion as its relation to the value of the load increases; hence in making rates for the longer distances or on the single-deck shipments the question of what the traffic will bear and continue to move freely may properly tend to a narrowing of the margin of profit. Taken as rate levels, and considering the rates for the distances which the bulk of the traffic is transported, we believe the scales recommended will be fair both to shippers and carriers. * * *

It is recommended that for the present the order entered herein, to the extent only that it prescribes rate scales, be not made applicable to Class II and Class III carriers, but that all other provisions of the order be made applicable to such carriers. If these carriers do not coincide with the establishment of rates prescribed in these proceedings establish through routes and joint rates on basis of the rate scales herein prescribed, plus reasonable arbitraries where conditions may justify the addition of arbitraries for the hauls on the short or weak lines, application may be made to the commissions of the state in which such lines are located for the determination of what if any arbitraries should be added, and after a reasonable time has elapsed for action thereon application may be made to this commission accompanied by the statement of the action taken by the state commission.

WESTINGHOUSE ELECTRO-PNEUMATIC INTERLOCKING AND SIGNALING is to be installed in the new terminal passenger station at Auckland, New Zealand. The contract was let to the Westinghouse Brake & Saxby Signal Company, London. The interlocking frame of 128 levers is being built at the McKenzie & Holland shops at Melbourne, Australia.

* * *



Illinois Central, Central Station, Chicago

1929

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Atterbury Says:

Give Public What It Wants

*P. R. R. president sees end
of competition dangers if
railroads will offer all
forms of transport—Advance
planning essential*

GENERAL W. W. AT-
TERBURY, president
of the Pennsylvania, in
addressing the Bond Club of
New York on May 16, spoke in
part as follows:

We are living in a remark-
ably progressive age. At the
turn of the twentieth century
who could have foreseen the tremendous develop-
ment of the motion picture, the motor vehicle, the
radio, labor saving appliances of all kinds, or, what is
now pushing its way to the forefront more and more—
the commercial airplane?

What radical changes these innovations have brought
about in our whole scheme of living, and in the coun-
try's development.

New Pioneering by Railroads

Now what have the railroads been doing during
these years of progress in other directions? Have they
been standing still, or have they been keeping pace with
the times? True, they have not in recent years been
pioneering in the manner of the early railroad construc-
tion gangs that pushed their way across the continent
and did so much to promote the development of this
vast country. But they have been carrying on a new
kind of pioneering. It is a constant study and striving
for intensive improvement in facilities and service—a
searching out of new and better ways of doing things.

Several weeks ago I had occasion to visit Omaha, and
decided to fly part of the way. We took the Transcon-
tinental Air Transport's office plane—the kind of plane
we shall soon have in operation in our 48-hour service
to the Pacific Coast—and flew from Chicago to Omaha.
It occurred to me then, with even greater force than
ever before, as we soared along on one of the most
comfortable rides I have ever had, that the word "rail-
road" no longer is adequate to describe the transporta-
tion service which up-to-date railroads now offer to the
public. We are no longer railroads alone; we are
transportation companies.

We must be prepared to offer you railroad service
where that is most desirable, or bus service,
or service by airplane. We must adjust our
freight facilities more and more to the
needs of the individual shippers. In other
words, my view of a railroad is that it
should give the people the kind of trans-
portation they want—not what the railroads
think they ought to have.

Let me give you three concrete examples
of what this new transportation service
means:

1. About the first of July you will be
able to pick up your telephone, order a

ticket and reservation from
Pennsylvania Station to Los
Angeles, and be there two days
later, your ticket and reserva-
tion will give you two nights'
comfortable sleeping in luxuri-
ous Pullmans and two delight-
ful daylight rides in de luxe
passenger airliners.

2. You can pick up your telephone again and order
a motor truck with a steel container to come to your
plant shipping platform in the morning, load up some
less-than-carload freight, and have the container hauled
to the railroad, loaded on a flat car and delivered intact
by motor truck to your customer's receiving platform
in Philadelphia the next day.

3. In a comparatively short time, too, you will be able
to go down to the Pennsylvania Station and buy a com-
bination ticket. It will enable you to go from here to
Chicago for instance, part way by railroad and part way
by motor bus.

An End to Wasteful Competition

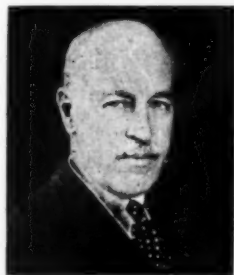
In other words, we on the Pennsylvania have em-
barked on a comprehensive program to link up motor
bus, motor truck and airplane transportation with our
railroad train service. This is one of the important
phases of transportation progress in this country today.
With the co-ordination of railroad and motor vehicle
transportation in our territory we hope at least to min-
imize the wasteful destructive competition that has
grown up over a period of years. That form of com-
petition is never in the interest of the public.

The Pennsylvania's participation in these branches of
transportation is assumed by the public to guarantee the
same scrupulous care for their safety, comfort and
punctuality as the public expects from the railroad's
passenger train service. In developing these auxiliary
services we have, therefore, taken particular precaution
to maintain the very highest standards of safety and
efficiency.

In our combination rail-air service, exhaustive studies
have been made to insure regularity and dependability
in all seasons and weather; to select a route
which offers the nearest approach to ideal
flying conditions that the country affords;
and to obtain the highest type of personnel
and equipment.

The Steady Improvement in Railroad Service

You are all aware of the steady improve-
ment in railroad service since the end of
the war. This has reduced the costs and
risks of industry and of distribution, and
has played an important part in the pros-



W. W. Atterbury

perity the country has enjoyed. A railroad is just as essential a tool to industry as any other tool or piece of machinery in its plant, and increased rapidity of transportation and delivery results in even greater benefit to industry than to the railroad itself.

I have never known a time when the comfort and convenience, the travel habits of people, their likes and dislikes were given more careful attention by the railroads than they are today. A constant study is made to adjust our trains to public convenience. This year's spring changes of time-table offer many examples. Numerous adjustments in the time of running, arrival and departure have been made because a careful study of what the people want indicated such adjustments to be desirable.

This policy of "selling" the railroads to the public is evidenced in other ways—in the modern luxury of the service itself, in coaches as well as in the dining cars and Pullmans, and in the appointments and comforts designed to meet every reasonable travel need. A through railroad train is a truly de luxe hotel on wheels.

The same policy holds true in connection with our freight traffic. Here, also, the service must be made so attractive that people will want to do business with us, not only because of the efficient manner in which we handle their business, but also because of the spirit of co-operation and helpfulness that prevails.

To give to railroad freight movement a new prestige and importance, the Pennsylvania has adopted the plan of naming its limited freight trains in much the same way as it has named its limited passenger trains. The limits of the freight service today are gradually attaining the same kind of distinctive personality that is represented in the de luxe passenger trains, and equal dependability for on time performance.

Ninety Per Cent of Freight Moves by Schedule

Up to a few years ago about 10 per cent of our freight trains moved on regular schedule—practically only livestock and perishables. Everything else moved in trains

which went forward as the freight accumulated, without assurance as to time of delivery. Today 90 per cent of the freight trains on the Pennsylvania move with the regularity of passenger trains.

The railroads must plan at least a decade ahead of general industrial progress in order to provide adequate facilities and service. That is to say, the railroads must plan now for the kind of service business will need ten years or more hence. Our railroads are not finished products. You cannot shut down on them for any considerable period and then tool them up for increased production over-night. Business and population growth, economic changes that may affect whole industries, improvements in railroading itself, must all be anticipated.

When railroad service is as at present—the most efficient and dependable the country has ever experienced—it is easy enough to accept it as a matter of course and expect that it will always be so. But more so than in the case of any other industry, the railroads must plan well ahead and keep moving forward.

What is necessary to keep these forward-looking plans active, and to carry them through to completion?

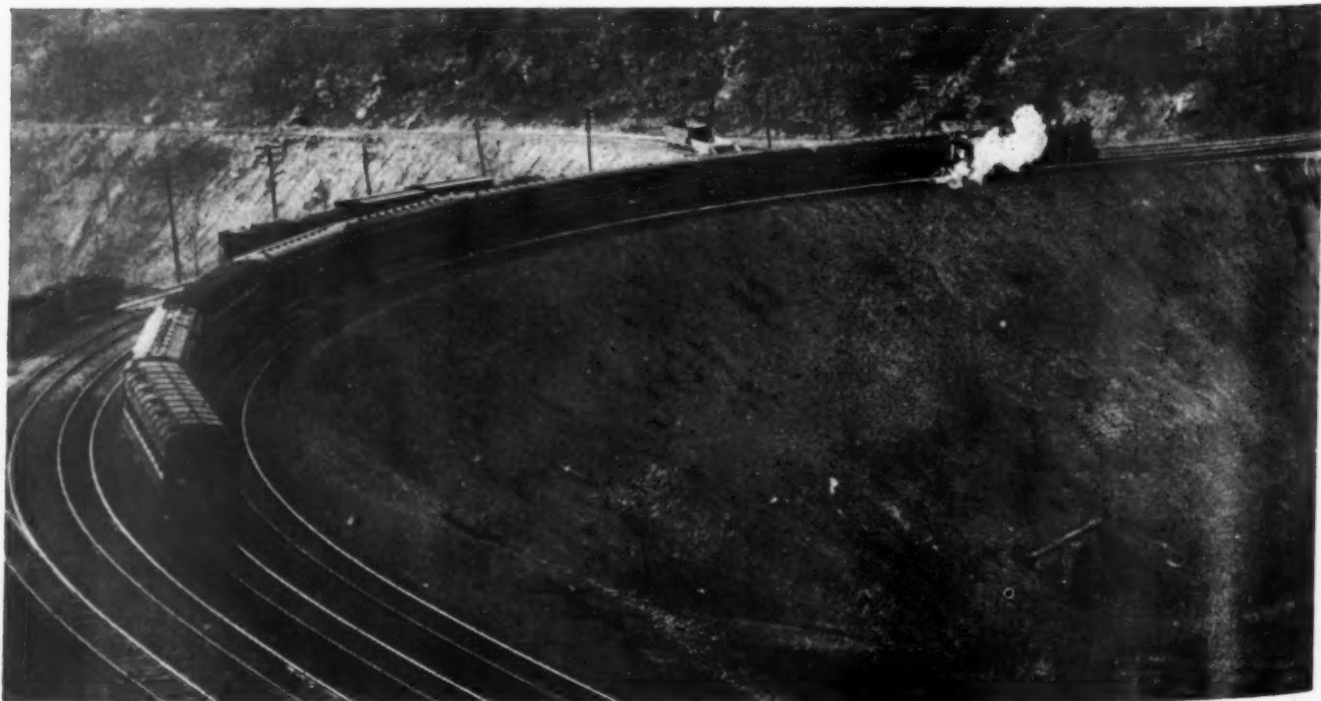
The Necessity of Adequate Earnings

More than any other one thing it is this: Investors whose savings are invited into railroad development must be assured that they will receive a fair return upon their money, and it is incumbent upon the public, through its legislative and regulatory authorities, to permit us to earn enough to pay a fair return to our stockholders.

In no year since the passage of the Transportation Act in 1920 have the railroads as a whole earned the return of 5¾ per cent which was designated by the Interstate Commerce Commission as a "fair return."

The only limit upon the ability of the railroads to increase their usefulness to the country and to anticipate future needs is the limit which the public itself, through its legislative and regulatory authorities, imposes upon the railroads in the form of unduly restricted returns.

* * * *



The Pennsylvania's "Iron City Express" on Horseshoe Curve

The New York Central in 1928

*Great increase in freight service operating efficiency—
Passenger earnings only 3 per cent below peak*

THE New York Central (including the Ohio Central and the Boston & Albany) in 1928 had operating revenues of \$381,733,244, a decrease of 0.4 per cent when compared with the preceding year. Operating expenses totaled \$288,250,203, a decrease of 1.8 per cent. Net revenue from railway operations was \$93,483,041, an increase of 3.9 per cent. The operating ratio in 1928 was 75.51 as compared with 76.53 in 1927. Railway operating income was \$64,215,593, or slightly less than one-half million dollars lower than in 1927, which decline, in the face of increased net revenue from railway operations, is attributable to an increase of almost four million dollars in tax accruals. Tax accruals in 1928, incidentally, totaled \$29,136,903, or only 16 per cent less than dividend payments.

Income Comparison

Net railway operating income in 1928 was \$62,222,121, or about \$400,000 more than the 1927 total, which improvement was secured by a reduction of \$748,419 in equipment rents. Operating income totaled \$62,256,698, or \$387,826 more than in 1927. Non-operating income, however, declined by some eight million dollars to a total of \$34,594,740, which decline was more than accounted for by over \$9,000,000 received in 1927 from an extra dividend on holdings of Michigan Central stock which dividend was not declared in 1928. The

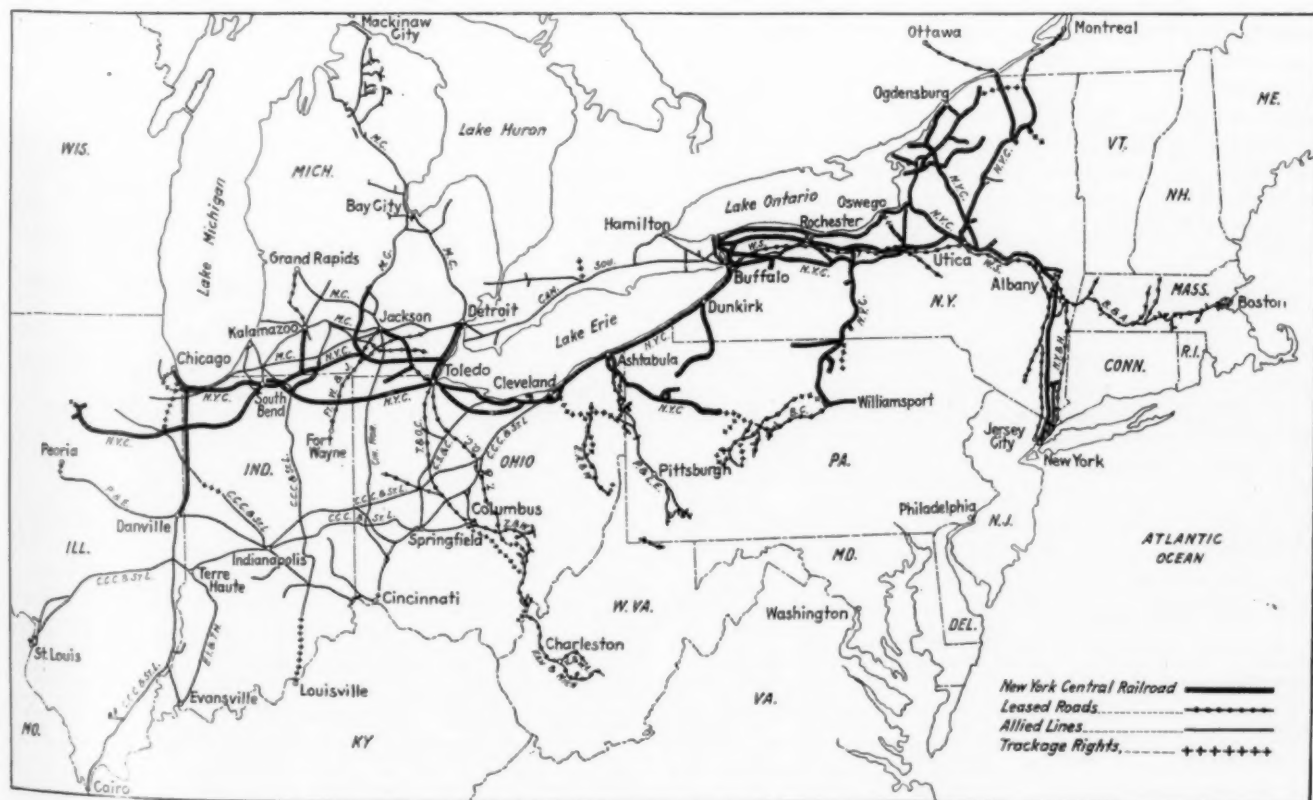
New York Central's net income in 1928 totaled \$50,334,485, or \$8,230,660 less than in 1927.

Corporate Surplus Over One-Fourth Billion

Dividends—8 per cent in 1928 as compared with 7 $\frac{3}{4}$ per cent in 1927—totaled \$34,854,879 and the surplus carried to profit and loss for the year was \$15,303,754, as compared with \$27,942,658 in the preceding year. The company's total corporate surplus now stands at \$261,796,939, or 56 per cent of outstanding capital stock. The company's capital stock in 1928 was increased by \$41,975,900, matched by the retirement of \$50,000,000 of funded debt. The ratio of capital stock to total capitalization by this issue was raised to 42.74 per cent, as compared with 38.34 per cent at the end of 1927.

A comparison of selected freight service operating statistics of the New York Central (excluding the Boston & Albany, but including the Ohio Central) for 1928 and 1927 is given in Table I and discloses a most gratifying increase in efficiency. With an increase of 11.5 per cent in gross ton-miles, of 13.4 per cent in net ton-miles and of 10 per cent in car miles, train-miles increased only 5.6 per cent, locomotive miles only 6.2 per cent and freight train-hours actually declined 1.8 per cent.

Car-miles per car-day showed an increase of 10 per cent and the average tons per car also increased, bring-



The New York Central

ing an improvement in net ton-miles per car-day of 13.4 per cent. Freight cars per train, gross and net tons per train and train speed likewise improved, bringing gross ton-miles per train-hour up to 31,379—an increase of 13.5 per cent—and net ton-miles per train-hour up to 13,193—15.5 per cent better than the 1927 total. Fuel consumption per 1000 gross ton-miles declined 6.5 per cent.

Freight Revenues Increase

In 1928 freight revenues (including the Boston & Albany and the Ohio Central) totaled \$234,617,642, an increase of approximately one-quarter of a million dollars over the preceding year. The actual number of tons handled showed a slight decrease under 1927.

Table 1—New York Central—Comparison of Selected Freight Operating Statistics*

	1928	1927	Per cent of change Inc. Dec.
Mileage operated	6,459	6,478	0.3
Gross ton-miles (thousands)	4,698,607	4,215,493	11.5
Net ton-miles (thousands)	1,975,538	1,742,509	13.4
Freight train-miles (thousands)	2,044	1,936	5.6
Freight locomotive-miles (thousands)	2,468	2,323	6.2
Freight car-miles (thousands)	125,720	114,285	10.0
Freight train-hours	149,737	152,514	1.8
Car-miles per day	28.6	26.0	10.0
Net tons per loaded car	26.6	25.5	4.3
Per cent loaded to total car-miles	59.2	59.9	1.2
Net ton-miles per car-day	450	397	13.4
Freight cars per train	62.5	60.0	4.2
Gross tons per train	2,299	2,177	5.6
Net tons per train	967	900	7.4
Train speed, miles per train-hour	13.6	12.7	7.1
Gross ton-miles per train-hour	31,379	27,640	13.5
Net ton-miles per train-hour	13,193	11,425	15.5
Lb. coal per 1,000 gross ton-miles	116	124	6.5
Loco-miles per loco-day	59.4	53.3	11.4
Per cent freight locos unserviceable	29.4	22.3	31.8
Per cent freight cars unserviceable	5.1	4.2	21.4

* Includes the Ohio Central, but not the Boston & Albany.

Bituminous coal tonnage decreased materially, as did iron ore. Anthracite, on the other hand, moved in considerably increased volume. The movement of automotive vehicles and parts increased. Detailed comparisons with the tonnage of the various classes of commodities handled in previous years is not possible by reason of the revised classification of commodities put into effect by the Interstate Commerce Commission in 1928. The percentage of tonnage was divided among

the general classes as follows: Products of agriculture, 6.3 per cent; animal products, 2.3 per cent; mine products, 56.1 per cent (bituminous coal, 34.7 per cent); forest products, 3.2 per cent; manufactures and miscellaneous, 28.6 per cent; l. c. l., 3.5 per cent.

The average haul per ton of revenue freight was 199.15 miles and the average revenue per ton-mile was 1.057 cents.

Experience with Passenger Traffic Unusual

The New York Central's experience with its passenger traffic has been quite different from that of most railways. The peak of its earnings from this class of business came in 1926, rather than in 1920 or 1923, as was the general experience. Its earnings from this business in the peak year totaled \$99,913,000, or 18 per cent more than in 1920 and 1.3 per cent more than in 1923, which were the previous peak years. In 1927 there was a recession in passenger earnings of 0.8 per cent from the 1926 total, and 1928, with earnings of \$96,917,043 from this service, fell more sharply to 3 per cent below the peak year. The decline in 1928 came entirely in interline and local business; commutation travel increased.

These figures reflect the great success which the New York Central had in building up its passenger business in the face of highway competition which brought great decreases in such revenues on most railroads. Whether or not they also indicate that the New York Central may have now to face a declining tendency in this business is problematical, since the experience of two years is not long enough for the basing of definite conclusions. Passenger business is a relatively important source of revenue to the New York Central, its passenger train earnings in 1928 being 31 per cent of total operating revenues. Moreover, it is highly profitable—the passenger service operating ratio of the New York Central Railroad in 1927 being 66.6 per cent.

The excellent facilities the company offers for long-distance travel and its successful merchandising of this service have aided materially in holding this class of traffic. During 1928 it announced arrangements for the transfer of passengers with an air line, thus offering expedited air-rail service. In 1928 also it completed its automatic train control installation to give this pro-

Table II—New York Central Railroad Company, Operating Results, Selected Items, 1921 to 1928

	1921	1922	1923	Including operating results of Boston & Albany and Ohio Central Lines					1928
				1923	1924	1925	1926	1927	
Mileage	5,704	5,710	5,700	6,890	6,920	6,931	6,928	6,906	6,911
Total operating revenues	\$292,130,995	\$316,620,098	\$365,175,188	\$421,034,784	\$369,606,930	\$385,994,505	\$399,537,749	\$383,377,311	\$381,733,244
Total operating expenses	221,768,390	250,400,470	278,602,021	325,917,241	279,970,163	290,440,958	298,931,038	293,399,836	288,250,203
Net operating revenues	70,362,605	66,219,628	86,573,167	95,117,543	89,636,767	95,553,546	100,606,711	89,977,474	93,483,041
Taxes	18,132,163	17,361,160	20,053,594	22,656,867	23,289,540	25,343,923	26,881,808	25,193,779	29,136,903
Railway operating income	52,176,357	48,805,052	66,421,414	72,355,699	66,167,887	69,992,348	73,557,823	64,677,578	64,215,593
Equipment rents, net Dr.	961,047	1,233,223	4,126,180	4,482,667	4,602,564	5,079,852	4,693,333	5,831,379	5,082,960
Joint facility rents, net Cr.	3,722,724	2,999,716	3,520,566	3,116,069	3,069,751	3,008,054	3,294,002	2,977,628	3,089,488
Net railway operating income	54,938,035	50,751,544	65,815,799	70,989,101	64,635,074	67,920,550	72,158,492	61,823,827	62,222,121
Dividend income	6,316,257	10,309,803	14,464,455	14,911,850	14,388,778	15,318,325	18,224,255	31,260,564	19,604,694
Total non-operating income	20,121,944	19,051,274	25,317,305	24,668,309	24,123,217	25,419,095	29,076,690	42,608,679	34,594,740
Gross income	75,097,499	69,951,089	91,343,388	95,867,694	88,921,304	93,430,020	101,257,458	104,477,551	96,851,438
Interest on funded debt	33,598,469	34,855,173	33,881,249	33,881,249	34,191,311	28,684,284	29,268,397	29,292,539	27,744,694
Total deductions from gross income	52,801,813	49,315,903	46,003,961	50,528,267	49,670,904	44,802,796	45,593,417	45,912,405	46,516,933
Net income	22,295,686	20,635,186	45,339,427	45,339,427	39,250,400	48,627,224	55,664,041	58,565,145	50,334,485
Dividends	12,479,641	12,876,985	17,432,978	17,432,978	20,728,835	26,732,833	26,827,815	30,462,783	34,854,879
Income balance	9,747,588	7,643,871	27,748,778	27,748,778	18,399,461	21,768,273	28,691,047	27,942,658	15,303,754
Rev. ton miles (thousands)	14,831,625	17,648,981	22,764,912	26,321,575	21,095,678	22,463,487	23,634,239	22,300,002	22,201,886
Rev. passenger miles (thousands)	2,608,080	2,572,565	2,758,223	3,193,533	3,122,308	3,168,122	3,279,968	3,273,593	3,220,754
Rev. per ton mile (cents)	1.208	1.122	1.035	1.040	1.077	1.069	1.051	1.051	1.057
Operating ratio	75.91	79.09	76.29	77.41	75.75	75.24	74.82	76.53	75.51

tection from Croton, N. Y., (at the end of the electrified zone) through to Englewood (Chicago), as well as on several additional divisions.

M. of W. and Transportation Ratios Decline

The more important component parts of the operating ratio have varied during the past six years as follows:

Percentage of Operating Revenues

	Maint. of Equipment	Maint. of Way & Structures	Transportation	Total Operating Ratio
1923	25.34	11.52	34.93	76.29
1924	21.43	12.57	36.46	75.75
1925	21.04	13.67	34.79	75.24
1926	21.07	13.49	34.00	74.82
1927	20.77	14.16	35.11	76.53
1928	21.47	13.35	34.90	75.51

Compared with 1927, expenses for maintenance of way and structures declined \$3,302,561, due to a decrease in the average cost of ties and in the company's rail laying program. There was an increase in maintenance of equipment expense due to an extensive program of rebuilding passenger cars and of heavy repairs to freight cars. Transportation expenses decreased \$1,384,067, which was more than accounted for by decreases in locomotive fuel expense. Under transportation expenses the item "other expenses" increased by \$579,619, which was largely attributable to payments for the handling of a greater tonnage of freight by motor truck.

The utilization of the unit container method of handling freight increased during 1928 and at the end of the year the company had 98 cars carrying 588 merchandise containers, 7 cars carrying 84 lime containers and 457 cars carrying 5,484 brick containers.

Large Expenditures for Improvements

The increase in the property investment account in 1928 was \$37,843,298, of which \$27,230,727 was expended on roadway and \$4,540,134 on equipment. The increase in this account in each of the past six years has been as follows:

	Roadway	Equipment	Total (Inc. Misc. and Imp. to Leased Property)
1923	\$13,824,558	\$18,702,537	\$36,017,155
1924	10,399,283	37,027,739	52,161,171
1925	12,226,472	8,111,331	23,212,984
1926	12,007,315	24,342,913	48,782,490
1927	19,822,315	16,876,275	52,307,477
1928	27,230,727	4,540,134	37,843,298

Major projects under way or completed during 1928 included the Buffalo terminal improvements (*Railway Age*, May 18, page 1147); the installation of car retarders on the westbound hump at Selkirk yard and another installation partially completed at DeWitt, N. Y.; four tracking on the Hudson division between Garrison and Beacon, N. Y. (*Railway Age*, March 2, page 517); enginehouse improvements at Harmon, N. Y., Rensselaer, N. Y., Air Line Junction, O., and Collinwood, O.; a coal dock extension and a new car dumper at Toledo; and improvements at Grand Central Terminal, New York.

Seventeen Hudson type passenger locomotives and three oil-electric locomotives were placed in service during the year, as were 84 passenger train cars, 15 rail motor cars and 1,567 freight train cars.

With its capital structure on an even firmer basis as a result of 1928 financing and with the tentative approval of the Interstate Commerce Commission of the plan to lease its controlled lines, in the interest of still greater operating efficiency, the New York Central can look forward to continued efficient handling of the heavy traffic of its important territory.

Old Timers in Railroad Signaling

THE days of the Railway Signaling Club—the half dozen pioneers who met in Chicago in 1895, and organized the forerunner of the Signal Section of the American Railway Association—were celebrated at Rye, Westchester County, New York on Tuesday, May 21, when 100 veterans of nineteenth century signaling met in an all-day reunion at the invitation of Wilmer W. Salmon, of New York, president of the General Railway Signal Company. As compared with other engineering professions, that of the signal engineers is little more than an infant, but it is a very sturdy infant, and the party gathered at the beautiful Westchester Biltmore Club numbered about 100.

Eighteen-ninety-five is taken as the chronological base line because not until that date, when the late George M. Basford, then one of the editors of the *Railway Review*, Chicago, called together the local signal engineers to discuss their professional joys and sorrows, was there any formal vehicle by which a record of signaling progress could be kept, but the real birth of the profession in America was about 1871 when two or three New England roads began to put in a few automatics; and several of the veterans of those days were present at this reunion.

The line between old and young was drawn at January 1, 1901, and invitations were sent to all men known to have been active in the signaling field prior to that date, and who have attained the rank of at least assistant signal engineer on an American railroad.

Readers who are acquainted in the signaling field will recognize in the list a considerable number of members of "The Old Guard" who, to reach New York, came long distances, and the geographical representation at the meeting was very good.

Mr. Salmon himself is one of the oldest in service, though not in years, and his brief and informal reminiscences at the dinner in the evening constituted the only feature that resembled speech making.

Like many others among the leading men in this field, Mr. Salmon began his railroad work as a civil engineer, and his fellow veterans greatly enjoyed his stories of the early days of his service on the Pennsylvania, the Reading, the Chicago & North Western, and afterwards his early experiences with the Hall Signal Company, as Chicago representative, and later with the Taylor electric interlocking which was the germ of the present General Railway Signal Company. Mr. Salmon appealed to the younger men in the signal field to realize more thoroughly the value and dignity of their profession and the importance of maintaining the rightful place of the profession in the world of railroad management. The railroad executive understands and better appreciates a signal engineer if he shows his ability, not only as an engineer, but as an operating man.

Charles E. Denney, vice-president of the Erie, who in his early years was a prominent signal engineer, made a brief and very interesting talk somewhat in line with Mr. Salmon's closing remarks. The signal engineer must be an operating man. It is his duty to educate and qualify himself in that direction although, of course, he remains an engineer. The field is broad and the perfecting of oneself in the multitude of details offers an ample field for the most ambitious man.

The committee assisting Mr. Salmon in his function as host consisted of Sidney G. Johnson, C. J. Kelloway,

J. P. Coleman, W. H. Elliott and A. H. Rudd. All these distinguished themselves not only as entertainers but as artistic golfers—though the highest prize in golf went to J. C. Mock.

Members of the "Old Guard" at Rye, N. Y., May 21, 1929

Adams, B. B.	Green, R. E.	Pfeil, Geo. H.
Allen, W. P.	Gillingham, W. J.	Poor, Fred A.
Ambach, E. T.	Griffin, H. W.	Poor, Chas. O.
Anderson, B. T.	Griffith, L.	Post, Wm. M.
Ames, Azel	Hackett, Chas. L.	Pry, E. B.
Baird, M. A.	Hale, H. E.	Punter, Wm. M.
Bartley, Wm. A.	Hamby, J. T.	Renshaw, A. H.
Balliet, H. S.	Hansel, Chas.	Raymer, I. S.
Bender, F. W.	Harland, W. H.	Rice, A. H.
Blackmore, Geo. A.	Henry, W. S.	Richards, D. W.
Bradley, E. E.	Hines, Albert B.	Reilly, A. R.
Briney, M. R.	Hobson, J. S.	Roberts, John
Buck, Hiram M.	Howard, L. F.	Rose, L. S.
Braam, J. F.	Howe, W. K.	Rudd, A. H.
Cadwallader, W. H.	Irwin, James C.	Salmon, W. W.
Chappell, G. W.	Johnson, J. A.	Scott, Warren Y.
Christofferson, C. A.	Johnson, R. C.	Sheene, H. R.
Clausen, L. R.	Johnson, S. G.	Sutherland, M.
Coleman, J. P.	Jones, F.	Sperry, H. M.
Cozzens, J. J.	Kelloway, C. J.	Stephens, Charles
Dean, Aaron	Lavarack, F. C.	Stevens, T. S.
Denny, C. E.	Lewis, H. W.	Stiles, T. Geo.
Derr, W. L.	Lomas, H. F.	Spangler, W. N.
Dodgson, F. L.	Mann, B. H.	TenEyck, P. G.
Dryden, Geo. H.	Macdonough, G. R.	Thomas, L.
Dunham, C. A.	Manuel, Wm. N.	Thomson, A.
Eck, W. J.	Miles, H. D.	Trout, Geo. W.
Ellis, Geo. E.	Mock, James C.	Trout, R. E.
Elliott, W. H.	Moffett, F. W.	Wiegand, F. B.
Elsworth, R. B.	Morrison, C. H.	Willis, W. H.
Everett, E. A.	Morrison, Wm.	Wilson, A. J.
Foale, H. J.	Morgan, Geo. D.	Yocum, A. H.
Follett, W. F.	Paine, G. H.	Young, J. Warren
Frink, O. B.	Peabody, J. A.	

Among those present who now and for some years back have been entirely unconnected with railroad signaling, were Messrs. Clausen, Hansel, Miles, Stephens, Ten Eyck and Wilson.

In connection with the calling of the roll, the chairman of the committee, Mr. Johnson, read a list of about sixty names of men who were prominent in the signaling field 30 years ago who are no longer living.

Freight Car Loading

WASHINGTON D. C.

REVENUE freight car loading amounted to 1,047,922 cars in the week ended May 11, an increase of 45,511 cars as compared with loading in the corresponding week of last year and an increase of 18,498 cars as compared with the corresponding total of 1927. Grain and grain products, livestock and

coal showed decreases as compared with the loading in the two preceding years. Loading in the Southern district only showed a decline as compared with a year ago. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, May 11, 1929

Districts	1929	1928	1927
Eastern	245,732	238,713	242,000
Allegheny	219,971	203,389	210,798
Pocahontas	58,695	55,706	63,000
Southern	142,097	143,934	153,290
Northwestern	163,227	146,934	155,690
Central Western	141,484	137,627	133,992
Southwestern	76,716	76,136	70,654
Total Western Districts	381,427	360,697	360,336
Total All Roads	1,047,922	1,002,411	1,029,424
Commodities			
Grain and Grain Products	36,955	42,123	40,225
Live Stock	26,305	27,064	29,156
Coal	159,155	159,713	163,021
Coke	12,475	10,247	10,908
Forest Products	69,409	67,174	70,994
Ore	71,595	38,251	58,384
Merchandise L.C.L.	264,028	261,198	262,135
Miscellaneous	408,000	396,641	394,601
May 11	1,047,922	1,002,411	1,029,424
May 4	1,050,192	978,053	1,024,761
April 27	1,051,728	963,007	1,021,576
April 20	1,004,156	945,289	950,545
April 13	971,730	912,659	949,561

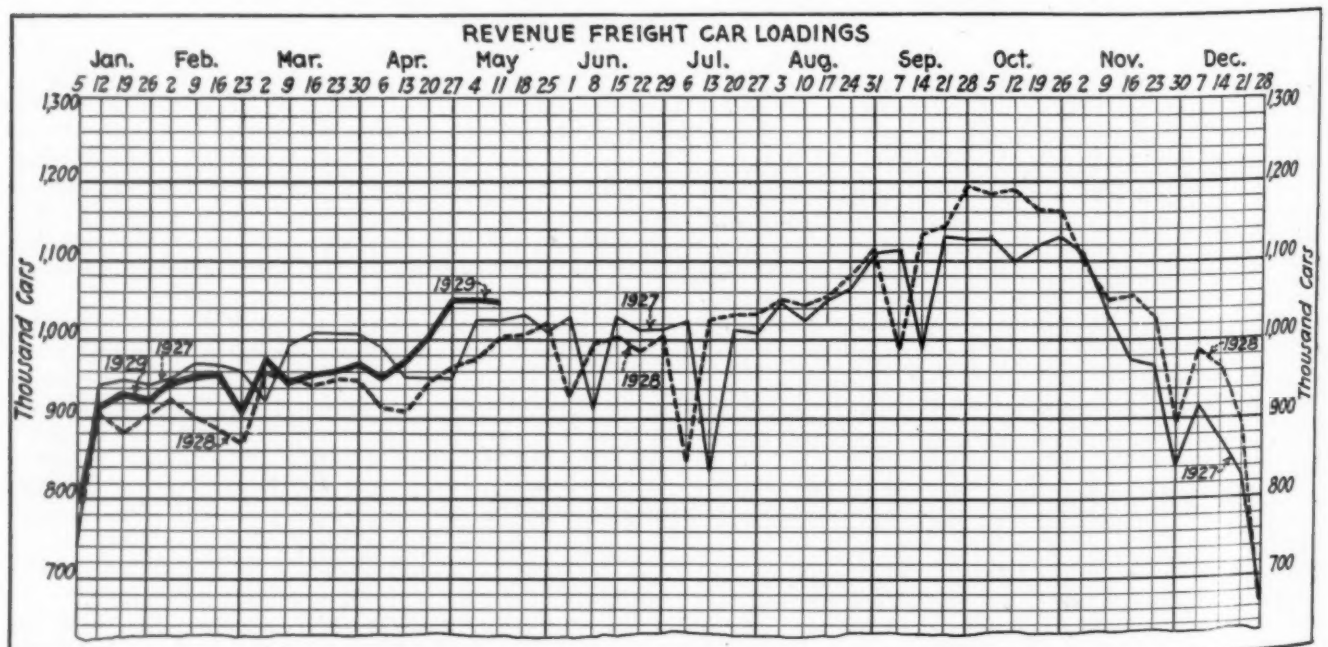
Cumulative totals, 19 weeks.....18,228,772 17,512,967 18,470,899

The freight car surplus averaged 220,821 cars during the period ended April 30, as compared with 244,245 cars on April 23. The total included 89,952 box cars, 87,367 coal cars, 23,418 stock cars, and 12,414 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended May 11 totalled 67,795 cars, an increase over the previous week of 346 cars and a decrease from the same week last year of 1,554 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
May 11, 1929	67,795	42,494
May 4, 1929	67,449	43,918
April 27, 1929	67,930	44,311
May 12, 1928	69,349	40,940
Cumulative Totals for Canada		
May 11, 1929	1,201,686	823,569
May 12, 1928	1,192,229	759,800
May 14, 1927	1,149,513	739,664



O'Fallon Decision

I. C. C. valuation basis invalid—Consideration must be given to repro- duction costs in arriving at value—Three judges dissent

WASHINGTON, D. C.

THE Interstate Commerce Commission, in valuing the railroads for rate-making and recapture purposes, must give consideration to present or reproduction costs, the Supreme Court of the United States held in its long-awaited decision in the *St. Louis & O'Fallon* case rendered on May 20.

How much weight is to be accorded to this element of value the court said, was not the matter before it, adding that: "No doubt there are some, perhaps many, railroads the ultimate value of which should be placed far below the sum necessary for reproduction. But Congress has directed that values shall be fixed upon a consideration of present costs along with all other pertinent facts; and this mandate must be obeyed." Apparently, therefore, a new test case will be necessary to determine how much weight must be given to this element.

The commission's order directing the O'Fallon to pay it one-half of its excess income on the basis of the values ascertained for the years 1920-1923, was declared invalid because, in the opinion of the court, it had failed to give any consideration whatever to present or reproduction costs, as required by the "law of the land," as set forth in previous decisions of the court. The commission had taken the position that it knew of no way of allowing anything for cost of reproduction short of giving it full weight, except by "mere caprice."

While the court gives no direction as to the weight to be accorded to present costs, the paragraph quoted from the *Southwestern Bell* case contains the sentence: "An honest and intelligent forecast of probable future values made upon a view of all the relevant circumstances is essential."

In valuing the O'Fallon property the commission had used an estimate of cost of reproduction as of 1914 at unit prices of that time; additions between 1914 and 1919 on the basis of increases in prices during that period; recorded net cost of additions less retirements after 1919; and current value of lands.

The principal immediate effect of the decision is to upset the preliminary calculations made by the commission's accounting and valuation forces as to the amounts by which some of the roads would be subject to recapture. While the commission has never made public the amounts of these estimates it is known that for some of the roads they ran into large figures.

The judgment of the three-judge court sitting in the federal district court for the eastern district of Missouri, which had dismissed the suit to enjoin the commission's order, was reversed by the Supreme Court by a 5 to 3 decision, Justices Brandeis, Holmes and Stone dissenting. Justice Butler, who was formerly counsel for the railroad

valuation committee, took no part in the consideration or determination of the case.

Justice Brandeis wrote a 47-page dissenting opinion, upholding the commission's methods, in which Justices Holmes and Stone joined, taking the position that the commission had given all necessary considera-

tion to cost of reproduction in rejecting it as an element to be accorded weight. Justice Stone also had a separate dissenting opinion in which Justices Brandeis and Holmes concurred.

The majority opinion, by Justice McReynolds, who also wrote the opinion of the court in the *Southwestern Bell Telephone* case several years ago, is only nine pages in length and does not undertake to discuss the issues in detail. After quoting from the *Smyth v. Ames* case of 30 years ago, and from the *Southwestern Bell* case, in addition to citing other cases, Justice McReynolds asserted simply that the doctrine stated had been consistently adhered to by the court but that the "long and argumentative" report of the commission "carefully refrains from stating that any consideration whatever was given to present or reproduction costs in estimating the value of the carrier's property."

Four dissenting commissioners, he said, declare that reproduction costs were not considered; "and the report itself confirms their view." The dissenting opinion of Commissioner Hall is quoted as accurately describing the action of the commission. After stating that in the exercise of its proper function the court has declared the law of the land concerning valuation for rate-making purposes Justice McReynolds said:

"The commission disregarded the approved rule and has thereby failed to discharge the definite duty imposed by Congress."

The court accepted the conclusions of both the commission and the district court that it had not been shown that the O'Fallon and the Manufacturers' were under common control and management and operated as a single system within the meaning of the recapture clause of the law. It also held that the lower court had rightly held on the only point on which it had set aside the commission's order, that no interest should have been imposed for any time prior to the final order. It also expressed the opinion that the district court had rightly rejected the claim of the railroads that excess earnings were not recapturable until the commission had fixed a level of rates intended to yield a fair return. It failed to agree with the finding of the lower court that it was unnecessary to review the commission's valuation.

The significant parts of the opinion by Justice McReynolds follow:

These are cross appeals from the final decree of the District Court, Eastern Missouri,—three judges sitting—in a suit to

annul an Interstate Commerce Commission order, dated February 15, 1927, which directed St. Louis and O'Fallon Railway Company to place in a reserve fund one-half of its determined excess income for the years 1920 (ten months), 1921, 1922 and 1923 (that is half of the sum by which the net railway operating income for each of those years exceeded six per cent of the ascertained value of property devoted to public service); and to pay to the Commission the remaining one-half with six per cent interest beginning four months after termination of the year, i. e., May 1, 1921, 1922, 1923 and 1924.

After an investigation instituted under Section 15a, May 14, 1924, for the purpose of determining incomes received by St. Louis and O'Fallon Railway Company (The O'Fallon) and Manufacturers' Railway Company (The Manufacturers'), asserted to be parts of one system, for the years 1920-1923, the Commission found:—(1) Although the stock of both corporations was mostly owned by the Adolph Busch Estate and their principal officers were the same, they were not carriers operated under common control and management as a single system within paragraph 6. (2) The Manufacturers' had received no excess operating income. (3) The value of The O'Fallon's property devoted to public service in 1920 (ten months) was \$856,065; in 1921, \$875,360; in 1922, \$978,874; in 1923, \$997,236; and during each of those years it received net operative income exceeding six per cent upon the stated valuation.

The above-described recapture order followed.

The cause is properly here under the Judicial Code, as amended by Act of February 13, 1925, (11, S. C., Title 28, Sec. 345)—...

Wisconsin Railroad Commission v. Chicago, Burlington & Quincy R. R. Co., 257 U. S. 563, and *Dayton-Goose Creek Railway Co. v. The United States*, 263 U. S. 456, point out the general purpose of the Transportation Act, 1920, and uphold the validity of Section 15a.

The Manufacturers' is a switching road with thirty miles of track within St. Louis, Missouri. The O'Fallon—a coal-carrying road—has nine miles of main line, all in Illinois and this connects with The Terminal Railroad at East St. Louis. Through the latter deliveries are made to sundry points in St. Louis, some of which are on The Manufacturers' line. "The distance between the railroad of the O'Fallon and the railroad of the Manufacturers' is about 12 miles and all communication by rail between the two properties is effected over the tracks of the Terminal, including a bridge over the Mississippi River." Both the Commission and the District Court held that the record failed to show these two roads were under common control and management and operated as a single system within the meaning of paragraph 6. We accept their conclusion.

The Commission directed The O'Fallon to pay 6 per cent interest on the recaptured one-half of its ascertained excess net railway operating income beginning four months from the end of the year during which the excess accrued (Sec. 6). The District Court rightly ruled that as the carrier made bona fide denial of any excess under circumstances sufficient to justify a contest, no interest should have been imposed for any time prior to the final order. Not until then could the carrier know what, if anything, it should pay.

Also, we think the District Court rightly rejected the claim that excess earnings were not recapturable unless and until the Commission had fixed a general level of rates intended to yield fair return upon the aggregate value of carrier property either as a whole, or in some prescribed rate or territorial group. Congress, of course, realized that final valuations would require prodigious expenditure of time and effort; but the language concerning recapture indicates that prompt action was expected. Practical application of paragraphs 5 and 6 does not necessarily depend upon prior compliance with paragraphs 2 and 3. The Act should be construed so as to carry out the legislative purpose. The proviso of paragraph 3 prescribing action to be taken during two years beginning March 1, 1920, and the clause of paragraph 6 excepting the income of certain roads prior to September 1, 1920, are hardly compatible with this claim by the carrier.

Paragraph 4, Section 15a, directs that in determining values of railway property for purposes of recapture the Commission "shall give due consideration to all the elements of value recognized by the law of the land for rate-making purposes, and shall give to the property investment account of the carriers only that consideration which under such law it is entitled to in establishing values for rate-making purposes." This is an express command; and the carrier has clear right to demand compliance therewith. *United States ex rel. Kansas City Southern Railway Co. v. Interstate Commerce Commission*, 252 U. S. 178.

The Law of the Land

"The elements of value recognized by the law of the land for rate-making purposes" have been pointed out many times by this Court. *Smyth v. Ames*, 169 U. S. 466; *Wilcox v. Consolidated Gas Co.*, 212 U. S. 19; *Minnesota Rate Cases*, 230 U. S. 352; *Southwestern Bell Telephone Co. v. Public Service Commission*, 262 U. S. 276; *Bluefield Water Works & Improvement Co. v. Public Service Commission*, 262 U. S. 679; *McCardle v. Indianapolis Water Co.*, 272 U. S. 400. Among them is the present cost of construction or reproduction.

Thirty years ago, *Smyth v. Ames* announced (546):

"We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth."

In *Southwestern Bell Telephone Co. v. Public Service Commission*, (287) we said: "It is impossible to ascertain what will amount to a fair return upon properties devoted to public service without giving consideration to the cost of labor, supplies, etc., at the time the investigation is made. An honest and intelligent forecast of probable future values made upon a view of all the relevant circumstances, is essential. If the highly important element of present costs is wholly disregarded such a forecast becomes impossible. Estimates for tomorrow cannot ignore prices of today."

The doctrine above stated has been consistently adhered to by this Court.

The report of the Commission is long and argumentative. Much of it is devoted to general observations relative to the method and purpose of making valuations; many objections are urged to doctrine approved by us; and the superiority of another view is stoutly asserted. It carefully refrains from stating that any consideration whatever was given to present or reproduction costs in estimating the value of the carrier's property. Four dissenting Commissioners declare that reproduction costs were not considered; and the report itself confirms their view. Two of the majority avow a like understanding of the course pursued.

Findings of the Court

In the exercise of its proper function this Court has declared the law of the land concerning valuations for rate-making purposes. The Commission disregarded the approved rule and has thereby failed to discharge the definite duty imposed by Congress. Unfortunately, proper heed was denied the timely admonition of the minority—"The function of this Commission is not to act as an arbiter in economics, but as an agency of Congress, to apply the law of the land to facts developed of record in matters committed by Congress to our jurisdiction."

The question on which the Commission divided is this: When seeking to ascertain the value of railroad property for recapture purposes, must it give consideration to current, or reproduction, costs? The weight to be accorded thereto is not the matter before us. No doubt there are some, perhaps many, railroads the ultimate value of which should be placed far below the sum necessary for reproduction. But Congress has directed that values shall be fixed upon a consideration of present costs along with all other pertinent facts; and this mandate must be obeyed.

It was deemed unnecessary by the Court below to determine whether the Commission obeyed the statutory mandate touching valuations since the order permitted The O'Fallon to retain an income great enough to negative any suggestion of actual confiscation. With this we cannot agree. Whether the Commission acted as directed by Congress was the fundamental question presented. If it did not, the action taken, being beyond the authority granted, was invalid. The only power to make any recapture order arose from the statute.

The judgment of the court below must be reversed. A decree will be entered here annulling the challenged order.

Dissenting Opinions

Justice Brandeis, in his dissenting opinion, expressed the opinion that the conclusions of the commission were well-founded and that it had given sufficient weight to reconstruction cost. "This court," he said, "has no concern with the correctness of the commission's reasoning as to the evidence in making its findings of fact, since it applied the rules of substantive law prescribed by Congress and reached its findings of actual value by the exercise of its judgment upon all the evidence, including enhanced construction costs." He said the main question for consideration is one of statutory construction.

"The commission undertook," he said, "as will be shown, to find present actual value and, in so doing, both to follow the direction of Congress and to apply the rule declared in the *Southwestern Bell* case. It is true that the court there declared that current reconstruction cost is an element of actual value; and that Congress directed the commission 'to give due consideration to all the elements of value recognized by the law of the land for rate-making purposes.' But, while the act required the commission to consider all such evidence, neither Congress nor this court required it to give to evidence of reconstruction cost a mechanical effect or artificial weight. They left untrammelled its duty to give to all relevant evidence such probative force, as, in its judgment, the evidence inherently possesses."

While current reproduction cost may be said to be an element in the present value of property, Justice Brandeis said, "in the sense that it is 'evidence properly to be considered in the ascertainment of value', *Standard Oil Co. v. Southern Pacific Co.*, 268 U. S. 146, 156, it is clear that current cost of reproduction higher than the original cost does not necessarily tend to prove a present higher value."

"The commission," he said, "was clearly authorized to determine for itself to what extent, if any, weight should be given to the evidence; and its findings should not be disturbed by the court, unless it appears that there was abuse of discretion." He also made the point that "functional depreciation, arising through external changes, through competitive means of transportation, and through progress in the art of transportation, may, in respect to a particular railroad, have become so large as to more than counter-balance that increase in its actual value which would otherwise flow from the rise in the price level since 1914."

Justice Stone said that the commission had "given consideration" to the element of reproduction cost, and that if "full weight" were to be given to that element in all cases, "then, as the commission points out in its report, the railroads of the country having in 1919 a reproduction cost or value of \$19,000,000,000 would now have a value of \$40,000,000,000 and we would arrive at the economic paradox that the present value of the railroads is far in excess of any amount on which they could earn a return." "Had the commission not turned aside," he said, "to point out in its report the economic fallacies of the use of reproduction cost as a standard of value for rate-making purposes, which it nevertheless considered and to some extent applied, I suppose it would not have occurred to any one to question the validity of its order."

The case involves directly only the order to the O'Fallon company to pay to the commission some \$226,000, representing one-half its net railway operating income for 1920-1923 in excess of 6 per cent upon the values found by the commission for those years. But as the commission had announced that the methods it applied in valuing the O'Fallon were to be applied as to the railroads generally, the effect is that the commission must adopt a method at least somewhat more liberal to

the railroads in its work of bringing all of its valuations down to date, by giving some weight to present costs.

The commission has completed its valuations as of the respective valuation dates, ranging from 1914 to 1921, for all the railroads except those that have come into existence since it began its valuation work. It has issued final reports as of the same dates in a considerable number of cases and has nearly completed the hearings on the protests filed by the carriers as to the others. It has, however, to bring all the valuations down to later dates and it has issued orders to the roads as to the method of reporting changes in their property subsequent to the valuation dates up to December 31, 1927. The O'Fallon case is the only one in which the commission has issued a specific order finding a value for recapture purposes, but it has done a great deal of work in the way of estimating valuations as of later years in the cases of other roads whose returns indicated excess income on the O'Fallon basis. These estimates will now have to be revised. Completion of this work has been delayed, however, while the commission has been awaiting a decision of the Supreme Court on the principles adopted in the O'Fallon case, and it may now be resumed in the light of the decision.

W. G. Brantley, of counsel for the Presidents' Conference Committee in Valuation, in a statement explaining the effect of the decision said in part:

"The opinion of the court does not require the commission to 'scrap' any of its valuation work, but only to complete the work. The cost of reproduction of the structural property of each railroad as of June 30, 1914, has been ascertained and reported by the commission. The St. Louis & O'Fallon Railroad is the only railroad for which the commission has undertaken to make a current valuation, and the current valuation for it was made, as the report of the commission shows, under the transportation act and not under the valuation act. This valuation uses the 1914 valuation as a base, subsequent additions to the property being added at cost, and subsequent deletions deducted. The result was called the value in the recapture years of 1920-1923. No attempt was made to ascertain or consider the cost of reproduction as of these years.

"Recently the commission has fixed upon December 31, 1927, as the new date to which all valuations shall be brought, and obviously the cost of reproduction as of that date must be determined and given consideration, and that is what the Supreme Court decision means. Just as there was a 'level' of prices prevailing on June 30, 1914, which the commission ascertained and applied, there exists a 'level' of prices prevailing on December 31, 1927, which the commission must likewise ascertain and apply in order that the value of the railroads as of that date may be known.

"This does not junk all the valuation work done under the act," said Ernest I. Lewis, chairman of the commission. "So far as I can see the decision entails little disturbance of that body of data. The inventories of railroad property are being perpetuated and can be used as a foundation for finding total figures by any method or theory of law. The only thing that it does disturb is the O'Fallon theory as set up for the purpose of recapturing excess earning of this particular railroad. We are just now beginning the work of bringing valuation up to date and the basic work in that is not disturbed. We have been waiting for the decision in this case before proceeding with other recapture cases."

President Hoover was asked to comment on the decision by newspaper correspondents, some of whom had written stories to the effect that it must result in huge increase in railway valuations and a large in-

crease in rates. "I am confident," he said, "that there will be no increase in railway rates as a result of the O'Fallon decision."

Daniel Willard, president of the Baltimore & Ohio, said that while he had read only such extracts from the decision as had appeared in the press, it seemed to him that the decision in effect reaffirmed the decision in the case of *Smyth v. Ames* more than thirty years ago. It was, of course, reassuring to the railroads, he said, in that it made for stability. He added that in his opinion the decision would have no immediate effect whatever upon railroad rates. It would, however, afford a guide to the Interstate Commerce Commission in its efforts to fix lawful valuations of the railroads as a basis for the calculation of so-called excess earnings as provided in the transportation act.

General W. W. Atterbury, president of the Pennsylvania, made the following statement on the decision:

"As I understand the decision of the United States Supreme Court in the O'Fallon case, the Court has merely reaffirmed its many times' expressed conclusion that reproduction cost is one of the elements which must be taken into consideration in determining the value of a public utility property, and undoubtedly it will be used in arguments before the Interstate Commerce Commission.

"Aside from the Eastern Class Rate Investigation, which has been pending for several years before the Interstate Commerce Commission, the Pennsylvania Railroad has no thought of requesting any general increase in rates, and I see nothing in this decision to cause any change in its policy."

* * *



The Pennsylvania's Passenger Terminal and Office Building at Pittsburgh, Pa.

Looking Backward

Fifty Years Ago

It seems to have been found to be impracticable to construct the proposed tunnel for the Canada Southern [now part of the Michigan Central] under the Detroit river by the "through" plan on account of the nature of the soil, and the Canadian government will be asked to permit the coffer dam system to be used in the work.—*Railway Age*, May 22, 1879.

Track on the Southern Pacific has been laid to Casa Grande, Ariz., 183 miles west of Yuma, and 26 miles beyond the recent terminus at Maricopa Wells. A terminal station has been temporarily established at Casa Grande and the trains run to that point, which is 914 miles from San Francisco, Cal. Work is progressing steadily toward Tucson, Ariz.—*Railroad Gazette*, May 23, 1879.

The sale of the St. Paul & Pacific [now part of the Great Northern] under foreclosure, to complete the transfer to the new owners, has begun by the sale of the St. Paul & Pacific Branch Line, extending from St. Paul, Minn., to Watab, 78 miles. The line was sold at St. Paul on May 7 under a decree of the United States Circuit Court and was purchased for the parties who own a controlling interest in the bonds for \$200,000.—*Railway Age*, May 22, 1879.

A device designed to purify feed-water has been applied to a number of locomotives on the Illinois Central from which results have been obtained that warrant the belief that the deposit of scale in boilers can be greatly diminished if not entirely prevented. In the absence of a better name it has been termed a "filter and lime-catcher." The forward dome on the locomotives has been utilized for this device. The feed-water is delivered from a spray at the top of the dome and in its descent to the body of the boiler it is compelled to pass over and among pieces of metal, wood, charcoal, tile and oyster shell.—*Railroad Gazette*, May 23, 1879.

Twenty-Five Years Ago

F. H. Plaisted has been appointed freight and passenger agent for the Oregon Short Line for the district of Idaho, with headquarters at Pocatello. W. G. Bied, heretofore superintendent of the Amarillo division of the Chicago, Rock Island & Gulf, has been appointed assistant to the general manager of the Chicago, Rock Island & Pacific at Chicago.—*Railway Age*, May 27, 1904.

The Association of Transportation and Car Accounting Officers was formed at Washington, D. C., on May 24 by the amalgamation of the Railway Transportation Association and the International Association of Car Accountants and Car Service Officers. The International Association has been in existence for 28 years and the Transportation Association for five years. As the work of the two associations was almost identical, except that the latter was made up of the ranking officers, it was deemed advisable to consolidate them.—*Railway Age*, May 27, 1904.

Ten Years Ago

The flat statement made by President Wilson in his message to Congress on Tuesday that "the railroads will be handed back to their owners at the end of the calendar year," creates at least one factor of certainty in the complicated railroad situation that has been lacking since December 26, 1917.—*Railway Age*, May 23, 1919.

Senator A. B. Cummins, of Iowa, who has also been elected president pro tempore of the Senate, has been elected chairman of the committee on interstate commerce, and J. J. Esch of Wisconsin, has been made chairman of the House committee on interstate and foreign commerce.—*Railway Age*, May 23, 1919.

Communications and Books

Railroad Losses on Rail-Water Terminals

CHARLESTON, S. C.

TO THE EDITOR:

The writer has read and studied the very thoughtful and thorough editorial in the April 27 issue entitled, "Railroad Competition." As a consistent reader of *Railway Age*, I have long felt that it seemed strange that so little has appeared in it on a very important phase of railroad traffic practice.

The rail-water terminal operations and practices at the ports are costing a large sum annually. Just how much, the railroads themselves do not know, but in the hearings before the Interstate Commerce Commission on Docket 12681—over eight years in the hearing—some very unusual information was developed by private and public rail-water terminal operators. No assistance was given the hearings by any traffic men, because it developed that the railroad men did not know what the various services they freely gave away cost the roads.

For example, the Interstate Commerce Commission examiner had this to say about the railroad lease policy in his report:

"Practice of leasing warehouses, or portions thereof, to large shippers for periods of less than one year, covering a storage season, at charges less than those named in published tariffs, while contemporaneously charging other shippers the tariff rates for a similar service, found unduly prejudicial to other shippers to the advantage of large shippers Practice of leasing warehouses for inadequate rentals, especially when greater revenues could be obtained under the application of the tariff rates is a reflection on the efficiency and economy of the railroad management."

The sworn testimony of the railroads for 1924 shows that losses in Savannah, Ga., alone amounted to \$1,142,449.08 for terminal services rendered.

In your editorial you make some very true and pertinent statements. Especially "Railroad competition gives the big shipper a power that he did not possess during the period of inadequate capacity." Also, "Any form of competition activity which tends to reduce the net operating income is contrary to the interests of the industry."

The nitrate of soda interests are practically concentrated on one railroad dock in Charleston because of the lease situation existing. The lease has been characterized as a "solicitation device" and it has produced the losses quoted above and has reduced the income to less than 25 per cent of the cost of rail-water terminal service.

Witness the following from the official records on Docket 12681:

Railroad Losses On Rail-Water Terminals Year—1924

North Atlantic Ports \$24,946,014.69

South Atlantic and Gulf Ports .. 3,806,057.94

Here is a sum of \$30,000,000 that must be hidden in the accounting and \$5,000,000 is added to traffic expenses which reached \$125,000,000 last year.

The unfortunate part of it all is, that these practices have made some and destroyed other ports, and there exists today no regulatory body to properly control the situation. The traffic man gives free storage, free time, no handling charges, leases of space, charges no dockage, nor any other fee and it costs \$30,000,000; but he is not responsible, and does not care. The transportation man is busy with heavier trains, speeding the cars and heavier loading and between their departments no idea of mutual responsibility exists. Your statement that "few persons in railroad service are employed by the industry as a whole", is correct.

In the hearings on Docket 12681 it would have been almost laughable, if it had not been so serious, to listen to the operating man dodge cost data, the cost auditor dodge operating data, the traffic man who could not testify on switching and the transportation man who knew no tariffs; and yet these

men proved the case of the public and private terminal operators.

The investment in terminals in the South alone, from Wilmington, N. C., to New Orleans, La., is: public ownership, \$129,650,000; railroad ownership, \$32,666,710. The subject is of vital importance to all the ports and to the commercial interests of the United States and the railroad discriminations against some ports demand regulation. The demand has been made that if the railroads persist in absorbing these terminal losses they be forced to cut off the terminal investment from the capital on which they claim the right to earn the allowed percentage.

All the ports discriminated against await the Interstate Commerce Commission's decision with great interest, and the editorial to which reference has been made has prompted the writer to urge that editorial attention be turned toward the port problem where millions are absorbed and charged to other items in an effort to conceal the absorption practice and not disclose the unbusinesslike practices brought on by a false estimate of a so-called competitive situation.

J. RUSSEL WAIT,

General Manager, Port Utilities Commission of Charleston.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Facts and Figures of the Automobile Industry 1929 Edition. "Automotive freight on railroads" p. 10-12. "70 railroads use motor trucks" p. 57. 96 p. Pub. by National Automobile Chamber of Commerce, New York City. Apply.

Recent Economic Changes in the United States. Report of the Committee on Recent Economic Changes of the President's Conference on Unemployment. Chapter IV, Transportation by Prof. Wm. J. Cunningham has been presented in the *Railway Age*. Chapter I takes up consumption and the standard of living, Chapter II, industry, III, construction, Chapter VII, management, and so on. 2 vols. Pub. by McGraw-Hill Book Co., New York City. \$7.50.

Recent Problems of Rail Transport at Home and Abroad, by C. E. R. Sherrington. Present difficulties, improvement in track design and appliances, signaling, and speed and punctuality of service discussed before the Royal Institution of Great Britain. 14 p. Pub. by Royal Institution of Great Britain, London, England. Apply.

The Relation of Civil Engineering to Transport Problems, by A. S. Quartermaine. Four essentials brought out—1. Obtain a steadily increasing quantity of traffic, 2. Carry this traffic speedily from acceptance to delivery without discomfort or damage, 3. Effect this with economy in operation, 4. Obtain this result with the minimum expenditure on construction and maintenance. 20 p. Pub. as Paper no. 229, Session 1928-1929 by Great Western Railway (London) Lecture & Society, London, England.

Periodical Articles

Business Index Highest Since 1923: Large Gain in Freight Car Loadings. Survey of present trends. *Analyst*, May 17, 1929, p. 891, 905.

The Railroad Talks Back, by Edward Hungerford. Answers in form of improved passenger equipment and service to various forms of competition. *Saturday Evening Post*, May 18, 1929, p. 10-11, 167-169.

Status of the German Locomotive Building Industry, by James T. Scott. *Commerce Reports*, May 13, 1929, p. 430.

Odds and Ends of Railroading

Police recently discovered a stock of tobacco which smugglers were trying to carry across the Belgian frontier into France, near Nice, in a locomotive cab. They promptly arrested the crew of the locomotive and seized the locomotive itself, which was detached from the train and run into a siding, where it was impounded under seal.

Senator Charles Johnson, when not serving the state of Illinois in that capacity, is a bill clerk on the Illinois Central at Carbondale. Johnson has received unusual honors during this, his first term, having been made chairman of the insurance committee, and a member of the congressional appointment, fish and game, visiting charitable institutions, waterways, public utilities and transportation committees.

A Modern Pilgrimage

During Easter week a pilgrimage was transported by the Canadian Pacific to the shrine of Ste. Anne de Beaupre, near Quebec, on a scale resembling in numbers those of the Middle Ages. Traveling on four special trains, consisting of 50 cars, the pilgrimage party numbered more than 1,100 persons.

Tiny Railroad Gets Receiver

The Fox & Illinois Union, which long ago would have been in the junk heap but for the farmers of the Fox River Valley, was placed in a receiver's hands. Dodging the junk pile again, the railroad went right on running. It isn't a very big railroad, but its 25 miles of track between Yorkville, Ill., and Morris are of vital importance to the farmers. Once its train should stop, the farmers would have difficulty getting their produce to market. For that reason the farmers bought it for \$90,000 in 1924 when its owner wanted to junk it. Although it was then said to earn only \$9.75 a year, and the taxes took all that and several thousand dollars more, the farmer-owners have operated the road, hauling only freight.

A Pre-Railway Comment

The first mention of railroads in American literature was made by Benjamin Latrobe, a distinguished engineer and architect, in a letter to Albert Gallatin, secretary of the treasury in the cabinet of President Thomas Jefferson, according to Miss Elizabeth O. Cullen, reference librarian of the Bureau of Railway Economics, Washington, D. C. Writing in the April issue of the Illinois Central Magazine, Miss Cullen says: "This letter was dated April 1, 1808, 17 years before the first successful locomotive was operated by George Stephenson in England and 21 years before the first steam locomotive was operated in America. Basing his calculations upon the use of horses as a motive power, Latrobe estimated the cost of construction of a double-track railroad at \$10,000 a mile."

Pre-War Relics

The old stone towers, which have been landmarks for many years at High Bridge, Ky., where the Southern crosses the Kentucky river, are about to be torn down to make way for double tracking. They were erected in 1856 for a suspension bridge for a railway it was proposed to build from Lexington, Ky., to Danville. The cable wires had been strung from the towers and part of the approaches built, when the Civil War put an end to the enterprise. When the Cincinnati Southern was begun in 1870 it was decided to cross the river at the same place, but the idea of a suspension bridge was abandoned. Accordingly, the Cincinnati Southern bought the land on which the towers stood, but not the towers themselves, since there was a mechanic's lien against them dating from their erection. In order to clear the title, a court sale was resorted to. The C. S. attorney bid a dollar, but another attorney, named Hardin, apparently on speculation, bid ten dollars, and the towers were sold to him. Hardin tried unsuccessfully to sell the towers to the railway at a large price. Failing

in this, he notified the road that it could not use the towers any longer as moorings for its bridge cables. Thereupon the road notified Hardin to remove the towers from its land and Hardin abandoned the speculation. So the towers have continued to crown the cliffs, and serve as landmarks, for 72 years, and are only now giving way to the march of progress.

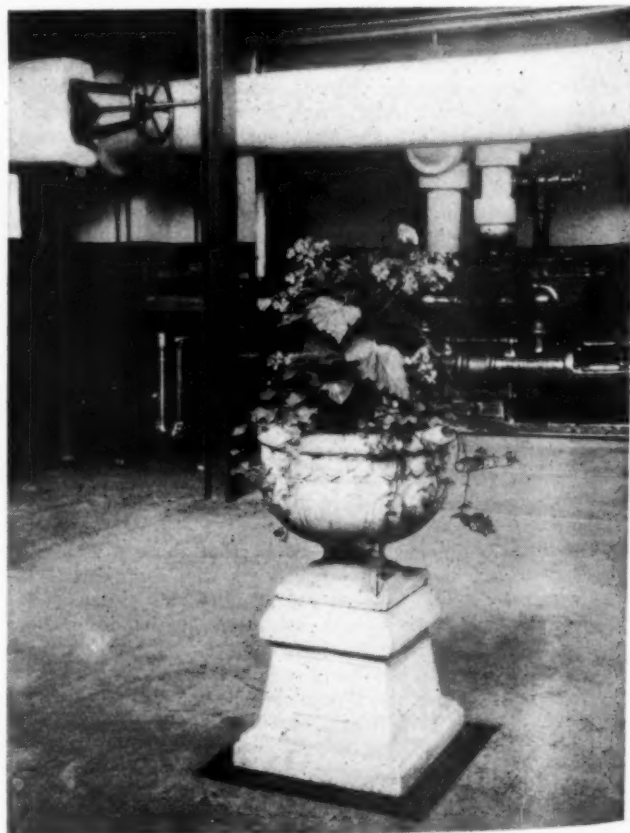
New Poetic Tributes Found

From Richmond, Va., comes the story of the discovery on two tombstones in different cemeteries, of the same verse, which reveals the fact that the famous old railway song, "Casey Jones," was far from being the first poetic tribute to historic engineers. On the monument erected to James Valentine, killed December 20, 1874, and that of Mike O'Donnell, who was killed ten years later, the following inscriptions have been found:

"Until the brakes are turned on time,
Life's throttle valve shut down,
He works to pilot in the crew, that wear the martyr's crown.
On Schedule time, on upper grade, along the homeward section,
He lands his train in God's roundhouse the morn of resurrection.
His time all full, no wages docked,
His name on God's payroll.
And transportation through to Heaven, a free pass to his soul."

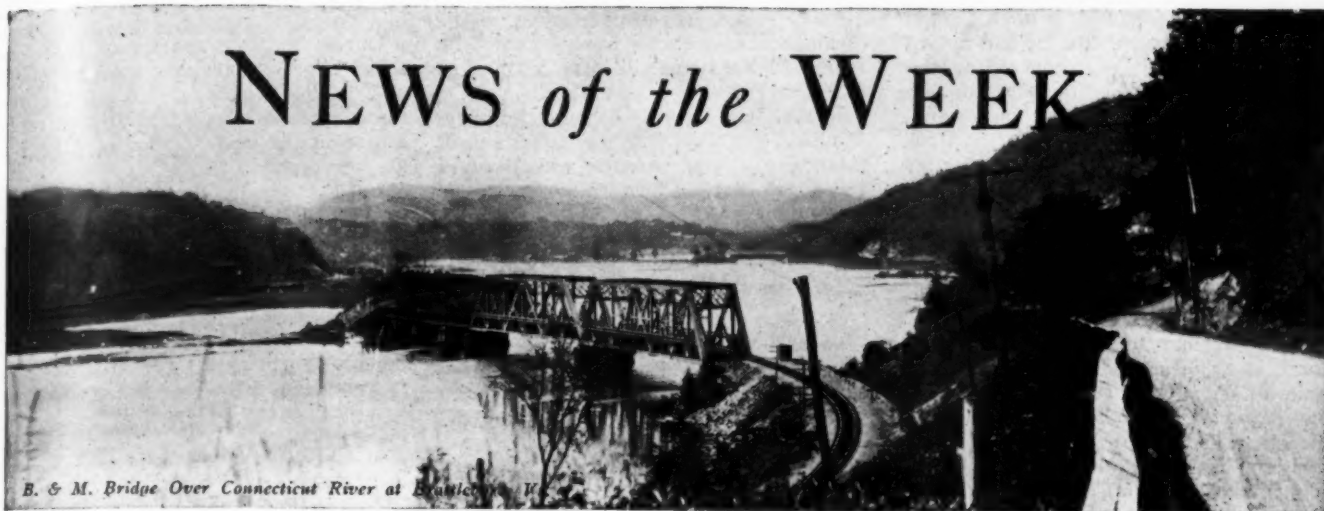
The inscriptions were found by R. T. Wilson, clerk of the State Corporations Commission of Virginia.

* * *



Flowers Brighten Boiler Room—This Section of the Pere Marquette Shops at Grand Rapids, Mich., Presents An Unusual Appearance

NEWS of the WEEK



B. & M. Bridge Over Connecticut River at Danbury, N. H.

REPRESENTATIVE PARKER has introduced in the House his railway consolidation bill, which was favorably reported by the committee on interstate and foreign commerce at the last session, as H.R. 3208.

THE WESTERN PACIFIC has negotiated an agreement with its mechanical department employees for a wage increase of 10 per cent, which became effective on May 1. The increase will affect about 800 men and involves an increase in the annual payroll of approximately \$100,000.

ELECTRIFICATION of all steam railroads in Chicago is the subject of a bill which has been introduced in the Illinois State Senate. The bill provides for a commission of nine, composed of three state senators, three state representatives and three private citizens appointed by the Governor, which shall report its findings to the next general assembly.

THE TEXAS & PACIFIC and the four train-service brotherhoods have reached an agreement for the settlement of issues considered by the emergency board which sat at Dallas, Tex., in April. As a settlement of the contention of the brotherhoods that the employees should be compensated for decreases in property values caused by the removal of terminals, the railroad has agreed to pay half the losses on homes involved in the transfer from Longview, Tex., to Mineola.

VERNE ALEXANDER, engineman of train No. 3, which was in the disastrous collision on the Canadian National near Drott, Ontario, on March 20, has been tried on a charge of manslaughter; and after 2½ days, the jury returned a verdict of not guilty. Alexander, testifying in his own behalf, said that he had had trouble with a foaming boiler, and that his anxiety concerning this was doubtless the reason why he forgot the meeting order.

Land Grant Rates Refused

The Supreme Court of the United States, affirming a judgment of the Court of Claims, holds that the United States is not entitled to land grant rates for the transportation of authorized private mounts of army officers ordered to change stations. *United States v. Galveston, Harrisburg & San Antonio*. Decided May 13, 1929. Opinion by Mr. Justice Butler.

Medal for O. D. Ball

Upon recommendation of the Interstate Commerce Commission, the President has awarded a medal of honor to Olney D. Ball of Globe, Arizona. This medal was awarded under the act of Congress authorizing bronze medals of honor for outstanding feats of bravery in connection with the saving of life upon railroads.

On January 11, 1927, Mr. Ball, a brakeman on the Southern Pacific, rescued a small boy on a tricycle who had fallen on the track in front of a moving caboose.

Illinois Central Prize Essay

E. Fred Koller, a student of Augustana College, Sioux Falls, S. D., is the winner of the grand prize of \$100 in the Illinois Central essay contest on "The Future of the Railroads." Mr. Koller also receives an award of \$25 for the best essay submitted from his institution, as do 44 other students of colleges and universities on the Illinois Central. There were 309 essays submitted in the contest, in which the judges were G. J. Bunting and F. L. Thompson, vice-presidents, and R. V. Fletcher, general counsel.

Standard Time in South Dakota

The legislature of South Dakota having passed a law effective July 1 adopting central standard time as the official time for that state, which conflicts with orders of the Interstate Commerce Commission prescribing time zones issued in October, 1918, the commission has re-opened its standard time zone investigation for hearing at Bismarck, N. D., on June 7 on the question as to whether the boundary line between the central and mountain zones should be modified to include in the central zone that portion of North Dakota and any portions of South Dakota that are now in the mountain zone.

W. & L. E.-Cleveland Terminal Hearing on June 3

The United States Circuit Court at Cincinnati, Ohio, has set June 3 as the date for the hearing of the appeal of the Cleveland Union Terminals Company from an injunction barring construction work on the site of the Wheeling & Lake

Erie station at Cleveland, Ohio. F. E. Taplin, in a statement defending the filing of the injunction proceedings against the Terminals Company, stated that at the annual W. & L. E. meeting at Cleveland on May 22 he would represent 230,000 shares of the preferred and common stock of that railroad, out of a total of 440,000 shares. He explained the Taplin representation by only a minority on the board of directors by the fact that the prior lien stock, which has the voting control when in default of dividend payments during a period of five years, is controlled by Van Sweringen interests.

Montreal Terminal Appropriation

The bill to vote the Canadian National \$50,000,000 for its solution of the Montreal terminal problem was given second reading in the House of Commons at Ottawa last week and referred to the House Committee on Railways, Canals & Telegraph Lines. In discussing the bill Hon. Charles A. Dunning, Minister of Railways, stressed the point more than once that while it was a Canadian National undertaking the door was never closed to a union station should the C. P. R. wish to come in.

Mr. Dunning pointed out the rapid growth of Montreal traffic handled by the Canadian National and stated that the bill will provide an expenditure of not more than \$10,000,000 in any one year, except with special permission by order in council. It is planned to develop the work during the course of the next seven years.

Road Not Liable When Injured Employee Had Deceived

The Supreme Court of the United States holds that one who obtained employment with a railroad company and remained at work as a switchman in a yard of the company by means of deception and fraud could not recover under the Federal Employers' Liability Act for personal injuries sustained by him while at work. The plaintiff's application for work having been rejected after a physical examination, he applied a few days later and was accepted subject to examination to ascertain if he was physically fit for the work. His true name was Joe but on the second application he gave his name as

John and represented that he had not applied before. He then procured another to impersonate him, and the substitute was approved by the examining physician.—Minneapolis, St. Paul & S. S. M. v. Rock. Decided May 13, 1929. Opinion by Mr. Justice Butler.

Court Denies Priority of Federal Claims Against M. & St. L.

The United States Circuit Court of Appeals at St. Louis, Mo., on May 18 upheld a decision of the federal district court at Minneapolis, Minn., denying the claim of the government for preference in the payment of \$2,924,000 advanced to the Minneapolis & St. Louis in 1920. The decision, handed down by Judges A. S. Van Valkenberg, J. Cottrell and George Scott, ruled that the railroad's debts to the government must follow the liens of material and supply companies and the first mortgages against the property.

The federal government, shortly after the passage of the Transportation Act of 1920, advanced about \$2,600,000 to the M. & St. L. for use in refunding mortgages and notes executed as financing incident to federal control of the railroads. When the railroad was placed in receivership in 1923 the government filed priority claims totaling \$3,714,000. Howard S. Abbott, master in chancery, dismissed a claim for \$799,400, allowed one for \$100 and held that in the others the government must take its chances along with other creditors. He held that when the government engaged in private business it lost its priority rights. His ruling had previously been upheld by Judge Wilbur F. Booth of the circuit court of appeals on September 6, 1928.

Discuss Car Hire in Canada

The question of car hire was fully discussed last week at Ottawa at a meeting of the House of Commons Committee on National Railways when Hon. H. H. Stevens, Centre Vancouver, pointed out to Sir Henry Thornton, President of the Canadian National, that he thought that road was paying too much for foreign car hire, that it might be well to buy more cars for the road.

When asked by Mr. Stevens for an explanation of the item in the annual report regarding hire of freight cars T. H. Cooper, general auditor of the Canadian National said:

"In 1928 we had an increase of 3,293,000,000 net ton-miles. In 1927 we handled 466 net ton miles per car day, and theoretically would have required 7,066,000 car days to handle the additional tonnage of 1928. This at a per diem of \$1 per car per day would have increased the adverse per diem balance by \$7,066,000. Economies were effected by improved transportation methods resulting in heavier loadings and quicker movements; the average car loading was increased from 24.80 to 25.32 tons, and the average miles per car day increased from 28.8 to 30.5. The result has been to increase the net ton miles per car day from 466 to 510, and we calculated with that reduced theoretical adverse per

diem balance we could have exceeded by \$4,693,000 the actual adverse balance of \$2,200,000."

R. A. C. Henry, Deputy Railways Minister, explained that peak conditions in Canada do not synchronize with those in the United States; hence it is economical to rent cars during peak periods.

Freight Claim Agents at Washington

A general desire to further reduce freight claim payments, which have decreased \$2,155,816 in 1928 as compared with 1927 and from \$119,000,000 in 1920 to \$36,557,243 in 1928, prevailed at the twenty-eighth annual meeting of the Freight Claim division of the American Railway Association held at Washington on May 21 to 24. H. T. Lively, general claim agent of the Louisville & Nashville and chairman of the division presided over the meeting at which over 500 representatives of the railroads and their families from Canada, Mexico and the United States were in attendance.

In addition to the reports of the various committees, the program included several speakers. Among these were R. H. Aishton, president of the American Railway Association, Hon. R. P. Lamont, secretary of commerce of the United States, M. J. Gormley, chairman of the Car Service division of the American Railway Association, W. P. Bartels, director of the Bureau of Service of the Interstate Commerce Commission, Henry C. Palmer, editor and manager of the Traffic World, J. H. Butler, general manager of the Department of Public Relations of the Railway Express Agency, J. E. Long, chairman of the Railroad Section of the National Safety Council and Edward Dahill, chief engineer of the Freight Container Bureau.

The C.N.R. in March

Increases in gross and net earnings for the month of March and for the three-month period from January 1, are shown in the official statement of earnings and expenses issued by the Canadian National.

In the month of March, gross earnings amounted to \$22,173,633 as compared with \$21,157,650 during the month of March, 1928, an increase of \$1,015,983, or 4.80 per cent. Operating expenses in March amounted to \$16,843,292.78 as compared with \$16,422,877.66 in March, 1928, an increase of \$420,415.12 or 2.56 per cent.

Net operating revenues for March last amounted to \$5,330,340.22 while in March, 1928, they were \$4,734,772.34 an increase in favor of March of this year of \$595,567.88 or 12.58 per cent.

The operating ratio for the month of March was 75.96 per cent as against 77.62 per cent in March of last year.

For the three-month period from January 1 of the current year the gross earnings totalled \$59,965,827 in comparison with gross earnings of \$59,618,023 during the similar three-month period of 1928, an increase in favor of the first quarter of 1929 of \$347,804 or 0.58 per cent.

During the first quarter of 1929 operating expenses amounted to \$49,115,058 and in the similar period of last year these expenses totalled \$49,094,028 an increase in the current year of \$21,029 or .04 per cent.

Net earnings for the three-month period of 1929 reached a total of \$10,850,768 and in the similar period of 1928 the net earnings amounted to \$10,523,994, an increase for the current year of \$326,774.20 or 3.11 per cent.

The operating ratio for the first three months of this year was 81.91 per cent, as compared with 82.35 per cent for the first quarter of last year.

Parliament Votes Funds for Purchase of Canadian Lines

Rapid work was done by the House of Commons at Ottawa on railway legislation last week when passage was given to the bills authorizing the Canadian National to purchase the St. John Valley Railway (New Brunswick) for \$6,000,000, the Quebec, Oriental & Atlantic and the Quebec & Western Railways for \$3,500,000, the Kent Northern Railway for \$60,000, the Inverness Railway in Nova Scotia for \$375,000, to pay \$13,000,000 as its share in the joint purchase with the Canadian Pacific of the three Alberta government railways, and to buy the Quebec, Montreal & Southern Railway from the Delaware & Hudson for \$6,000,000. The Senate has also passed a number of these purchase bills and bills providing for branch line construction. There was a hitch in the Senate Railway Committee, though, on the bill for the purchase of the Quebec, Montreal & Southern, as Sir Henry Thornton had told that committee that when he had his eye on that road he learned that an option for its purchase had been held by a Mr. Burnett of New York and President Loree of the Delaware & Hudson had told Sir Henry he would have to do business with the option-holder. Members of the Senate Committee feared some form of hold-up by an option-holder or middleman and held the bill up a day, but later in the week the objection was withdrawn. When some Senators objected that \$6,000,000 was a big price for a road in a rather run-down condition Sir Henry told them that while he was paying \$6,000,000 for the road, he was getting \$2,000,000 of good equipment thrown in.

New England Roads' 1929 Budgets Total \$45,000,000

Expenditures for improvements totaling nearly \$45,000,000 will be made during 1929 by five New England railroads, according to a survey conducted by the New England Council. These five roads, the New York, New Haven & Hartford, the Boston & Maine, Boston & Albany, Bangor & Aroostook, and Maine Central, will spend a total of \$44,695,000 for freight and passenger service betterments as compared with some \$20,000,000 expended by the same roads for improvements in 1928. Additional equipment, new

buildings, new freight terminals and improved road bed and bridges are contemplated in the plans.

Among the outstanding projects are improvements, including car retarder installations, at freight terminals of the New York, New Haven & Hartford, one at Cedar Hill, Conn., and the other at Providence, R. I., entailing a total expenditure of \$1,750,000. In all this road plans to spend about \$19,000,000 during the year for improvements.

The Boston & Maine's improvement

budget contemplates expenditures of \$16,000,000, which includes \$5,350,000 on new roadbed and bridges, and \$1,000,000 on new equipment.

The Boston & Albany plans expenditures to total approximately \$4,695,000, including an improved roadbed program to cost \$1,500,000. The Bangor & Aroostook will spend about \$1,000,000 for improvements, including new freight rolling stock and new freight coaling pockets. The Maine Central will spend about \$3,000,000 for new equipment.

Interpreting Sections 10 and 20

The Supreme Court of the United States has affirmed the ruling of the district court for western Pennsylvania quashing the indictment against the Fruit Growers' Express Company for misreporting ice furnished to refrigerator cars of the Pennsylvania at Pittsburgh and falsifying the official records of the railroad company showing expenditures made in the shipments. By contract between

(Continued on page 1224)

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 183 Steam Railways, Including 16 Switching and Terminal Companies.

Item	United States		FOR THE MONTH OF MARCH, 1929 AND 1928		FOR THE MONTH OF MARCH, 1929 AND 1928		FOR THE MONTH OF MARCH, 1929 AND 1928		FOR THE MONTH OF MARCH, 1929 AND 1928	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Average number of miles operated	241,277.84	240,518.42	59,906.81	59,914.94	5,633.30	5,621.05	40,151.51	40,025.39	135,586.22	134,957.04
Revenues:										
Freight	\$393,368,041	\$388,414,661	\$173,304,953	\$166,885,462	\$19,219,213	\$19,025,838	\$52,914,144	\$55,271,025	\$147,929,731	\$147,232,336
Passenger	471,878,790	470,617,538	36,623,998	35,861,412	1,503,086	1,445,541	10,597,042	10,379,720	23,154,664	22,930,865
Mail	11,039,584	8,143,573	3,719,862	3,074,915	250,264	239,127	1,376,191	1,238,197	5,693,267	5,591,334
Express	12,832,217	12,135,296	6,271,522	5,567,153	305,084	290,703	1,793,315	1,937,862	4,462,296	4,339,578
All other transportation	17,219,191	17,028,011	9,786,447	9,509,032	173,359	173,435	1,102,294	1,068,412	6,157,091	6,277,132
Incidental	9,928,909	8,941,805	4,884,463	4,446,675	297,938	323,856	1,502,076	1,225,433	3,244,432	2,945,841
Joint facility—Cr.	1,040,552	1,181,935	342,225	420,460	13,651	9,502	141,191	138,206	543,485	613,767
Joint facility—Dr.	333,876	364,367	86,337	128,760	3,800	2,186	29,839	29,471	213,900	203,950
Railway operating revenues	516,973,408	506,098,452	234,847,133	225,636,349	21,752,795	21,505,816	69,396,414	71,229,384	190,971,066	187,726,903
Expenses:										
Maintenance of way and structures	66,070,116	64,250,065	26,085,473	25,623,215	2,921,559	3,158,787	10,809,237	9,298,656	26,253,847	26,169,407
Maintenance of equipment	102,329,725	101,140,476	48,858,676	47,415,536	4,710,353	4,663,644	13,071,985	13,570,244	35,688,711	35,491,052
Traffic	10,347,943	10,342,259	3,950,694	3,886,455	258,402	271,135	1,645,877	1,736,291	4,492,970	4,448,378
Transportation	178,550,547	178,469,903	84,430,079	84,134,912	5,660,469	5,752,886	23,658,679	24,034,283	64,801,320	64,547,822
Miscellaneous operations	4,796,298	4,485,727	2,220,506	2,115,260	79,606	89,208	630,221	612,602	1,865,965	1,668,657
General	16,063,533	16,418,186	7,007,013	7,328,461	582,097	614,587	2,133,779	2,150,783	6,340,644	6,324,355
Transportation for investment—Cr.	878,927	1,185,063	164,481	133,964	2,031	50,508	99,822	112,516	612,593	888,075
Railway operating expenses	377,279,235	373,921,553	172,387,960	170,369,875	14,210,455	14,499,739	51,849,956	51,290,343	138,830,864	137,761,596
Net revenue from railway operations	139,694,173	132,176,899	62,459,173	55,266,474	7,548,340	7,006,077	17,546,458	19,939,041	52,140,202	49,965,307
Railway tax accruals	32,511,006	31,502,333	13,538,547	12,778,252	1,730,652	1,669,350	4,378,213	4,521,534	12,863,594	12,533,197
Uncollectible ry. revs.	123,425	105,348	55,489	47,408	4,145	3,229	16,824	16,652	46,967	38,059
Railway operating income	107,059,742	100,569,218	48,865,137	42,440,814	5,813,543	5,333,498	13,151,421	13,400,855	39,229,641	37,394,051
Equipment rents—Dr. balance	7,447,201	7,613,043	3,589,927	3,948,507	450,453	449,071	1,021,630	827,281	3,342,097	3,330,326
Joint facility rent—Dr. balance	2,146,063	2,080,137	1,081,104	1,186,215	110,276	117,011	86,817	67,176	867,866	709,735
Net railway operating income	97,466,478	90,876,038	44,194,106	37,306,092	6,209,720	5,709,558	12,042,974	14,506,398	35,019,678	33,353,990
Ratio of expenses to revenues (per cent.)	72.98	73.88	73.40	75.51	65.31	67.42	74.72	72.01	72.70	73.38
Average number of miles operated	241,277.21	240,471.00	59,910.87	59,878.60	5,633.30	5,621.01	40,147.64	40,025.16	135,585.40	134,946.23
Revenues:										
Freight	1,123,561,608	1,073,004,190	494,328,770	461,169,082	59,622,456	54,447,365	150,463,854	150,969,467	419,146,528	406,418,276
Passenger	1,215,248,953	1,218,960,395	109,889,837	111,001,374	4,192,596	4,403,528	31,434,515	32,643,788	69,732,005	70,911,705
Mail	29,098,377	23,611,933	10,558,055	8,875,891	730,780	649,273	4,024,554	3,556,935	13,784,988	10,529,834
Express	31,457,386	29,364,082	14,997,542	13,324,392	697,765	717,830	4,557,586	4,277,301	11,204,493	11,044,559
All other transportation	49,332,079	47,702,696	27,839,710	26,582,060	505,118	534,440	3,011,543	2,927,811	17,975,708	17,658,385
Incidental	28,832,533	26,846,117	14,817,549	13,654,220	811,083	964,062	3,791,626	3,596,317	9,412,275	8,631,518
Joint facility—Cr.	3,093,438	3,305,298	1,039,441	1,287,189	31,268	33,209	419,533	392,087	1,603,196	1,592,813
Joint facility—Dr.	955,119	1,087,456	241,251	387,830	12,131	6,673	89,361	90,003	612,376	602,950
Railway operating revenues	1,479,669,255	1,421,707,255	673,229,653	635,506,378	66,578,935	61,743,034	197,613,850	198,273,703	542,246,817	526,184,140
Expenses:										
Maintenance of way and structures	179,885,397	179,256,505	74,493,439	74,552,788	8,834,399	8,986,546	28,280,202	27,020,684	68,277,357	68,696,487
Maintenance of equipment	296,767,014	293,525,767	141,864,329	136,970,292	13,817,894	13,732,100	37,543,159	39,222,291	103,541,632	103,601,084
Traffic	31,281,599	30,805,530	11,755,323	11,444,097	811,715	808,846	5,225,230	5,488,628	13,489,331	13,063,959
Transportation	529,225,888	524,492,949	248,824,226	246,639,882	17,019,187	17,139,508	68,423,298	70,361,592	194,959,177	190,351,967
Miscellaneous operations	14,074,095	13,500,389	6,577,919	6,414,751	224,277	252,666	1,812,815	1,847,260	5,459,084	4,985,712
General	47,867,147	48,611,389	20,813,803	21,754,738	1,763,294	1,848,284	6,319,244	6,280,316	18,970,806	18,728,051
Transportation for investment—Cr.	2,339,016	3,185,491	467,182	418,923	14,914	88,835	218,792	302,255	1,638,128	2,375,478
Railway operating expenses	1,096,762,124	1,087,007,038	503,861,857	497,357,625	42,455,852	42,679,115	147,385,156	149,918,516	403,059,259	397,051,782
Net revenue from railway operations	382,907,131	334,700,217	169,367,796	138,148,753	24,123,083	19,063,919	50,228,694	48,355,187	139,187,558	129,132,358
Railway tax accruals	95,254,241	89,351,367	38,220,630	35,411,115	5,218,061	5,030,232	13,178,771	12,678,074	38,636,779	36,231,946
Uncollectible ry. revs.	279,007	317,618	116,347	161,532	6,193	5,500	49,780	45,823	106,687	104,763
Railway operating income	287,373,883	245,031,232	131,030,819	102,576,106	18,898,829	14,028,187	37,000,143	35,631,290	100,444,092	92,795,649
Equipment rents—Dr. balance	21,780,441	21,833,682	11,817,526	11,869,985	41,688,301	41,467,188	2,046,287	2,130,961	9,604,929	9,299,924
Joint facility rent—Dr. balance	6,051,561	5,827,131	2,953,396	3,038,993	328,539	359,793	215,164	90,355	2,554,462	2,337,990
Net railway operating income	259,541,881	217,370,419	116,259,897	87,667,128	20,258,591	15,135,582	34,738,692	33,409,974	88,284,701	81,157,735
Ratio of expenses to revenues (per cent.)	74.12	76.46	74.84	78.26	63.77	69.12	74.58	75.61	74.33	75.46

^a Includes \$3,376,541 sleeping and parlor car surcharge. ^b Includes \$3,195,118 sleeping and parlor car surcharge. ^c Includes \$9,892,975 sleeping and parlor car surcharge. ^d Deficit or other reverse items. ^e Includes \$9,524,756 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Operating Statistics of Large Steam Railways—Selected Items for March, 1929, Comp

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotives and tenders	Net. Revenue and non-revenue	Servicable	Un-servicable	Per cent unservicable	Stored	
New England Region:													
Boston & Albany.....	1929	407	206,917	218,674	5,387	67.9	272,288	98,944	101	23	18.7	27	
	1928	407	200,054	212,781	5,207	66.8	262,180	93,213	99	23	18.8	13	
Boston & Maine.....	1929	2,070	398,348	472,322	54,691	71.6	661,803	246,811	285	37	11.4	73	
	1928	2,074	442,974	571,217	45,646	71.6	669,203	251,321	256	58	18.5	28	
N. Y., New H. & Hart....	1929	2,102	524,714	587,758	35,942	69.3	860,852	337,102	278	87	23.9	16	
	1928	2,130	549,461	605,730	38,362	66.9	840,204	321,335	324	58	15.2	51	
Great Lakes Region:													
Delaware & Hudson.....	1929	875	321,047	425,697	45,427	65.2	602,061	277,965	236	33	12.2	82	
	1928	875	317,166	430,115	50,442	63.7	578,019	266,715	247	36	12.7	94	
Del., Lack. & Western....	1929	998	533,246	614,349	69,380	68.7	985,669	391,708	243	49	16.8	16	
	1928	998	556,132	628,530	68,506	67.0	986,705	401,086	253	57	18.3	16	
Erie (inc. Chi. & Erie)....	1929	2,317	916,697	992,431	75,371	64.0	2,439,637	996,204	391	106	21.4	23	
	1928	2,317	934,078	1,026,158	88,039	64.5	2,290,798	946,762	419	119	22.2	36	
Lehigh Valley	1929	1,343	546,631	602,225	71,322	66.5	1,009,372	419,131	310	101	24.6	44	
	1928	1,345	520,539	569,737	65,918	64.4	949,972	386,325	360	75	17.3	87	
Michigan Central	1929	1,822	640,472	653,358	19,606	62.1	1,304,692	431,046	195	41	17.5	18	
	1928	1,822	628,187	643,601	17,245	60.3	1,212,035	400,506	202	83	29.0	22	
New York Central.....	1929	6,467	2,152,063	2,416,626	186,330	61.1	5,103,776	2,072,841	930	382	29.1	116	
	1928	6,459	2,114,552	2,374,451	168,686	62.1	4,951,738	2,051,421	1,058	350	24.9	273	
New York, Chi. & St. L....	1929	1,665	700,509	709,400	7,128	63.8	1,325,980	502,268	212	62	22.6	30	
	1928	1,665	680,232	688,452	7,337	62.2	1,268,125	474,409	229	55	19.3	35	
Pere Marquette	1929	2,178	477,459	482,396	5,744	62.2	764,600	325,013	179	32	15.1	14	
	1928	2,181	435,408	440,533	5,237	61.9	690,316	282,870	181	39	17.7	28	
Pitta. & Lake Erie.....	1929	231	130,210	132,623	1,930	60.8	363,844	201,064	52	13	19.7	10	
	1928	231	126,348	128,472	1,459	59.4	364,203	201,707	53	18	25.1	9	
Wabash	1929	2,497	929,543	968,186	12,358	63.2	1,601,277	577,019	282	74	20.9	5	
	1928	2,497	847,524	895,206	13,752	63.4	1,496,169	542,032	308	64	17.2	44	
Central Eastern Region:													
Baltimore & Ohio.....	1929	5,536	2,018,137	2,406,634	174,467	60.292	3,964,426	1,821,308	1,010	214	17.5	107	
	1928	5,534	1,920,550	2,270,434	177,212	61.5	3,710,563	1,706,398	1,011	254	20.1	119	
Central of New Jersey....	1929	691	262,223	281,964	47,903	59.2	494,828	224,160	178	31	15.0	25	
	1928	691	266,019	287,147	47,697	58.4	516,037	242,016	182	35	16.3	45	
Chicago & Eastern Ill....	1929	946	257,603	258,269	3,021	70.14	420,720	181,824	90	71	44.0	18	
	1928	945	274,086	275,757	3,481	61.9	460,002	208,311	105	51	32.7	27	
Clev., Cin., Chi. & St. L....	1929	2,371	772,186	798,525	17,534	60.7	1,555,557	684,149	322	124	27.9	25	
	1928	2,370	785,703	814,352	16,874	61.6	1,582,650	723,388	325	111	25.4	33	
Elgin, Joliet & Eastern ..	1929	453	153,055	163,535	8,664	62.3	337,293	172,883	78	9	10.7	...	
	1928	461	154,288	164,076	7,991	62.4	342,674	172,928	77	13	14.3	...	
Long Island	1929	396	48,029	52,457	16,778	54.8	44,630	15,868	53	8	13.8	...	
	1928	396	52,164	63,374	11,443	54.6	47,752	15,650	48	8	14.2	...	
Pennsylvania System.....	1929	10,738	4,057,183	4,704,555	457,448	63.3	9,574,238	4,386,674	2,686	321	10.7	607	
	1928	10,851	3,974,187	4,509,044	386,916	64.0	8,662,142	3,919,758	2,810	413	12.8	802	
Reading	1929	1,452	656,159	725,023	53,911	18.188	1,230,322	595,282	336	74	18.0	38	
	1928	1,417	640,994	694,405	66,704	16.744	1,170,200	569,042	340	74	17.9	59	
Pocahontas Region:													
Chesapeake & Ohio.....	1929	2,730	1,118,427	1,201,299	55,710	36.878	2,985,543	1,565,856	532	93	14.9	52	
	1928	2,717	1,141,173	1,234,467	49,466	36.883	2,957,555	1,566,923	552	92	14.2	74	
Norfolk & Western.....	1929	2,230	829,428	954,687	40,003	31.000	2,528,137	1,339,051	480	53	10.0	107	
	1928	2,231	801,699	968,546	34,472	29.134	2,328,330	1,238,016	521	58	10.1	132	
Southern Region:													
Atlantic Coast Line.....	1929	5,153	817,596	825,259	11,475	22.402	1,207,124	429,748	404	83	17.0	69	
	1928	5,105	762,879	767,578	11,540	19.882	1,120,800	420,601	405	56	12.1	86	
Central of Georgia.....	1929	1,898	290,392	292,905	5,118	7.760	405,674	172,094	132	20	13.0	5	
	1928	1,898	297,286	298,955	6,320	7.675	407,473	173,671	135	24	15.2	11	
Ill. Cent. (inc. Y. & M. V.)	1929	6,710	2,029,920	2,051,428	30,663	55.433	3,552,883	1,465,674	732	109	13.0	15	
	1928	6,595	2,096,612	2,111,637	51,081	58.128	3,817,522	1,648,586	767	107	12.3	28	
Louisville & Nashville....	1929	5,066	1,540,048	1,633,374	56,448	32.793	2,192,151	1,037,915	602	91	13.1	19	
	1928	5,061	1,739,597	1,810,911	61,739	36.354	2,474,755	1,182,015	614	104	14.5	29	
Seaboard Air Line.....	1929	4,475	672,429	696,203	11,770	17.956	1,033,780	370,532	255	48	15.9	...	
	1928	4,484	595,614	614,030	9,960	15.893	893,036	350,103	266	61	18.7	5	
Southern	1929	6,679	1,557,700	1,593,036	35,449	39.235	2,149,607	877,150	839	122	12.7	98	
	1928	6,720	1,490,732	1,522,213	32,332	38.822	2,133,103	876,100	820	111	11.9	80	
Northwestern Region:													
Chi. & North Western....	1929	8,467	1,456,168	1,537,597	24,600	35.953	2,107,947	826,919	755	104	12.1	85	
	1928	8,463	1,555,020	1,623,883	28,133	38.592	2,279,945	885,438	804	130	13.9	119	
Chi., Milw., St. P. & Pac..	1929	11,248	1,708,059	1,843,755	106,162	50.405	3,295,061	1,214,381	799	147	15.6	162	
	1928	11,247	1,713,677	1,838,561	117,645	51.558	3,034,381	1,266,776	826	148	15.2	178	
Chi., St. P., Minn. & Om..	1929	1,724	313,435	335,724	15,718	6.222	357,832	142,731	144	22	13.4	21	
	1928	1,724	326,521	347,114	15,274	6.995	387,246	161,745	155	28	15.5	22	
Great Northern.....	1929	8,378	839,162	863,094	53,804	29.797	1,659,006	741,422	481	154	24.2	67	
	1928	8,156	768,075	794,885	47,292	27.921	1,561,919	694,594	554	114	17.0	127	
Minn., St. P. & S. St. M....	1929	4,357	484,459	501,266	5,749	13.697	716,748	313,586	208	45	17.6	32	
	1928	4,358	528,591	544,738	5,684	13.763	736,671	318,598	232	32	12.0	19	
Northern Pacific	1929	6,476	784,951	836,149	52,031	27.253	1,468,079	645,870	447	111	20.0	54	
	1928	6,414	819,745	873,656	52,122	28.792	1,593,808	706,078	448	131	22.6	64	
Oreg.-Wash. R. R. & Nav..	1929	2,246	208,572	219,689	15,934	6.160	355,166	154,141	122	19	13.3	19	
	1928	2,246	199,037	212,647	18,534	6.194	349,762	156,867	132	17	11.1	17	
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F.).....	1929	10,416	1,651,369	1,791,505	93,031	55.633	3,232,520	1,201,563	751	165	18.0	173	
	1928	10,389	1,542,700	1,667,531	88,663	51.138	2,958,075	1,109,263	777	146	15.8	223	
Chicago & Alton.....	1929	1,000	300,582	321,238	4,124	7.568	473,998	174,213	122	23	15.6	15	
	1928	1,000	315,498	340,086	3,260	7.767	487,980	201,824	124	26	17.3	21	
Chi., Burl. & Quincy.....	1929	9,317	1,469,043	1,530,634	54,696	47.247	2,715,022	1,197,977	703	161	18.6	44	
	1928	9,320	1,641,610	1,692,861	62,607	54.554	3,267,671	1					

ared with March, 1928, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding lo-como-tives and tenders	Gross tons per train, ex-cluding lo-como-tives and tenders	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including lo-como-tives and tenders	Locomo-tive miles per lo-como-tive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1929	2,891	4,885	7,776	3.9	19,076	1,316	478	18.4	410	32.9	7,840	171	62.3
1928	3,517	4,671	8,188	8.3	17,918	1,310	466	17.9	367	30.7	7,387	181	62.0
Boston & Maine.....1929	9,978	10,391	20,369	3.5	20,993	1,661	620	18.4	391	29.6	3,847	120	53.0
1928	12,148	10,553	22,701	4.7	17,313	1,511	567	19.2	357	27.0	3,909	131	63.3
N. Y., New H. & Hart..1929	15,010	16,450	31,460	11.4	21,917	1,641	642	20.1	346	24.7	5,174	118	55.2
1928	17,328	16,445	33,773	9.3	20,153	1,529	585	19.8	307	23.2	4,866	125	54.3
Great Lakes Region:													
Delaware & Hudson....1929	10,275	5,836	16,111	3.7	23,766	1,875	866	27.1	557	31.5	10,248	152	56.6
1928	10,911	5,578	16,489	3.5	21,679	1,822	841	27.7	522	29.5	9,833	157	54.7
Del., Lack. & Western...1929	16,953	8,181	25,134	4.7	24,141	1,848	735	21.4	503	34.2	12,659	143	75.5
1928	17,915	7,119	25,034	4.4	22,344	1,774	721	22.6	517	34.1	12,964	149	72.7
Erie (inc. Chi. & Erie)..1929	29,611	20,199	49,810	4.5	33,958	2,661	1,087	23.9	645	42.2	13,871	117	69.3
1928	32,199	18,324	50,523	5.6	29,919	2,452	1,014	24.1	604	38.8	13,182	128	66.8
Lehigh Valley1929	20,905	8,531	29,436	9.8	26,052	1,847	767	23.4	459	29.5	10,064	153	52.9
1928	24,085	8,365	32,450	7.6	25,346	1,825	742	23.1	384	25.8	9,262	164	47.1
Michigan Central.....1929	17,196	18,987	36,183	5.4	32,662	2,037	673	17.8	384	34.8	7,632	113	92.0
1928	18,845	15,390	34,235	4.7	30,540	1,929	638	18.3	377	34.3	7,091	120	74.9
New York Central.....1929	67,873	69,448	137,321	5.2	32,092	2,372	963	24.2	487	32.9	10,340	113	64.0
1928	74,198	65,741	139,939	5.1	30,792	2,342	970	25.0	473	30.9	10,245	117	58.2
New York, Chi. & St. L..1929	13,088	11,183	24,271	6.8	26,842	1,893	717	21.2	668	49.5	9,733	108	84.5
1928	14,441	10,596	25,037	6.5	25,627	1,864	697	21.2	611	46.3	9,193	115	79.2
Pere Marquette1929	9,176	9,147	18,323	3.6	21,261	1,601	681	25.7	572	36.2	4,814	105	74.7
1928	10,125	7,857	17,982	4.3	20,341	1,585	650	24.0	507	34.2	4,184	111	65.3
Pitts. & Lake Erie.....1929	13,422	8,696	22,118	10.7	32,287	2,794	1,544	42.5	293	11.3	28,045	104	67.7
1928	17,641	6,376	24,017	3.7	32,942	2,883	1,596	46.2	271	9.9	28,135	123	58.8
Wabash1929	14,505	15,652	30,157	2.2	26,815	1,723	621	20.5	617	47.5	7,456	129	88.8
1928	15,690	11,348	27,038	3.2	28,240	1,765	640	20.5	647	49.9	7,002	131	78.7
Central Eastern Region:													
Baltimore & Ohio.....1929	71,018	29,856	100,874	6.4	22,823	1,964	902	30.2	582	31.3	10,612	154	68.0
1928	76,285	28,660	104,945	4.7	22,199	1,932	888	30.0	525	28.4	9,946	157	62.4
Central of New Jersey...1929	18,028	10,708	28,736	6.4	22,365	1,887	855	29.5	252	14.4	10,471	160	50.9
1928	19,384	10,105	29,489	6.5	21,555	1,940	910	31.2	265	14.5	11,298	150	49.7
Chicago & Eastern Ill....1929	12,809	4,195	17,004	38.6	24,880	1,633	706	25.9	345	20.7	6,199	141	52.3
1928	12,778	3,765	16,543	30.4	23,510	1,678	760	28.6	406	23.0	7,110	141	57.8
Clev., Cin., Chi. & St. L..1929	20,790	20,547	41,337	5.1	28,306	2,014	886	27.9	534	31.5	9,308	122	59.0
1928	23,068	20,018	43,086	3.6	27,044	2,014	921	29.5	542	29.8	9,844	125	61.5
Elgin, Joliet & Eastern...1929	9,117	8,642	17,759	5.7	14,894	2,204	1,130	38.5	314	13.1	12,305	139	63.8
1928	9,443	7,867	17,310	4.4	15,282	2,221	1,121	38.3	322	13.5	12,112	138	61.7
Long Island1929	1,481	4,101	5,582	2.1	6,420	929	330	23.1	92	7.2	1,293	355	36.6
1928	1,662	4,162	5,824	1.6	5,426	915	300	24.0	87	6.6	1,276	294	43.4
Pennsylvania System....1929	214,333	81,097	295,430	5.6	28,317	2,360	1,081	30.1	479	25.1	13,178	130	55.4
1928	223,300	72,602	295,902	6.2	25,265	2,180	986	29.0	427	23.0	11,652	137	49.0
Reading1929	29,306	13,618	42,924	3.4	21,401	1,875	907	32.7	447	22.6	13,224	151	61.3
1928	32,439	12,206	44,645	3.9	20,556	1,826	888	34.0	411	20.5	12,954	165	59.4
Pocomantas Region:													
Chesapeake & Ohio.....1929	31,957	10,671	42,628	2.7	33,775	2,669	1,400	42.5	1,185	51.0	18,500	95	64.8
1928	33,560	7,860	41,420	2.7	32,156	2,592	1,374	42.5	1,220	51.5	18,606	99	64.4
Norfolk & Western.....1929	30,274	8,627	38,901	1.0	42,045	3,048	1,614	43.2	1,110	43.3	19,369	131	60.2
1928	31,229	7,171	38,400	1.1	38,900	2,904	1,544	42.5	1,040	40.4	17,897	140	55.8
Southern Region:													
Atlantic Coast Line.....1929	21,834	12,427	34,261	4.8	20,569	1,476	525	19.2	405	34.3	2,690	114	55.4
1928	23,398	11,188	34,586	6.1	19,317	1,469	551	21.2	392	30.7	2,658	112	54.5
Central of Georgia.....1929	4,509	6,085	10,594	4.9	18,396	1,397	593	22.2	524	32.0	2,925	139	63.2
1928	5,448	6,254	11,702	4.5	18,405	1,371	584	22.6	479	29.4	2,952	141	61.9
Ill. Cent. (inc. Y.&M.V.)1929	40,357	22,289	62,646	4.1	24,360	1,750	722	26.4	755	45.9	7,046	137	79.9
1928	43,309	20,429	63,738	7.1	24,567	1,821	786	28.4	834	46.9	8,064	134	79.9
Louisville & Nashville...1929	44,548	19,086	63,634	8.3	17,349	1,423	674	31.7	526	27.3	6,609	157	78.7
1928	44,558	17,317	61,875	8.6	17,560	1,423	679	32.5	616	31.6	7,534	160	84.2
Seaboard Air Line.....1929	15,295	10,908	26,203	6.4	19,230	1,537	551	20.6	456	35.4	2,671	132	75.4
1928	15,834	10,845	26,679	5.5	18,039	1,499	588	22.0	423	29.5	2,519	141	61.6
Southern1929	47,885	19,697	67,582	8.9	19,130	1,380	563	22.4	419	28.2	4,237	159	54.7
1928	45,109	20,905	66,014	6.8	18,430	1,431	588	22.6	428	28.4	4,205	164	53.8
Northwestern Region:													
Chi. & North Western...1929	45,972	28,639	74,611	6.7	18,389	1,448	568	23.0	358	24.8	3,151	144	58.7
1928	45,906	27,257	73,163	7.0	18,969	1,466	569	23.0	390	27.3	3,375	142	57.1
Chi., Mil., St. P. & Pac.1929	48,933	26,947	75,880	3.0	21,741	1,731	711	24.1	516	33.9	3,483	139	66.5
1928	48,379	21,840	70,219	3.2	22,563	1,771	739	24.6	582	37.5	3,633	137	64.8
Chi., St. P., Minn. & Om.1929	2,651	9,409	12,060	8.4	14,304	1,142	455	22.9	382	25.7	2,671	133	68.0
1928	2,355	8,856	11,211	8.1	14,927	1,186	495	23.1	465	30.1	3,027	133	63.9
Great Northern.....1929	38,315	11,241	49,556	5.5	23,370	1,977	884	24.9	483	27.6	2,855	145	46.6
1928	40,413	9,513	49,926	6.4	23,753	2,034	904	24.9	449	25.8	2,747	139	40.7
Minn., St. P. & S. St. M.1929	18,699	5,951	24,650	4.0	17,526	1,479	647	22.9	410	25.4	2,322	112	64.6
1928	19,481	5,781	25,262	5.2	16,308	1,394	603	23.1	407	26.0	2,358	115	67.3
Northern Pacific.....1929	36,289	7,476	43,765	9.1	24,132	1,870	823	23.7	476	27.9	3,217	150	51.3
1928	37,104	6,967	44,071	7.9	24,885	1,944	861	24.5	517	29.7	3,551	154	51.6
Ore.-Wash. R.R. & Nav.1929	7,463	3,722	11,185	9.9	22,291	1,703	739	25.0	445	25.7	2,214	170	53.9
1928	7,704	3,966	11,670	6.6	21,141	1,757	788	25.3	434	24.0	2,253	173	50.4
Central Western Region:													
Atch., Top. & S. Fe (incl.1929	53,516	16,271	69,787	7.1	30,326	1,957	728	21.6	555	39.5	3,721	114	66.4
P. & S. F.).....1928	58,131	14,964	73,095	6.0	28,449	1,917	719	21.7	490	34.0	3,444	116	61.4
Chicago & Alton.....19													

News of The Week

(Continued from page 1221)

the companies the express company agreed to perform the icing and other service, and make the reports. The ground of the district court's ruling was that section 10 (1) and section 20 (7) of the Interstate Commerce Act, relied on to support the indictment, are really intended only to apply to common carriers, their directors, officers, agents and employees or others acting for and in the interest of carriers or in collusion with them, and not to persons whose only relation to a carrier is that of an independent contractor acting adversely to the carriers interest in fraud of it and without its knowledge or acquiescence; and, second, that the counts of the indictment only denounced the keeping of false or inaccurate official "records kept by the carrier" and did not include records not kept by the carrier like bills, memoranda and other data furnished by an independent contractor, intentionally misleading the carrier or its agents in keeping its official records.

The Supreme Court said, in part: "Of course if the common carrier were privy to the furnishing of short ice, or to the making of false preliminary data by the independent contractor, both the carrier and the independent contractor would become criminally responsible for the shortage and for the misrepresentation of the official record. But that is not the case we have here,"—*United States v. Fruit Growers' Express*. Decided May 13, 1929. Opinion by Mr. Chief Justice Taft.

Condensed Crossing Cautions

The Central of Georgia utilizes one of its newspaper manifestoes to call attention to the dangers threatening automobilists or pedestrians in crossing railroad tracks. In 1928 a total of 2,568 men, women and children were killed at highway grade crossings of railroads in this country while in addition more than 2000 trespassers were killed on railroad tracks or property. In contrast to this it ap-

pears that of nearly 800 million fare paying passengers transported by the railroads during the year, only one in 50 million was killed in train accidents.

There were 137 grade crossing accidents on the Central of Georgia in 1928, in which 19 persons were killed and 81 injured. Every one of these accidents could have been prevented by the exercise of the same caution which the average pedestrian exercises before crossing a street—looking to make sure his way is clear before leaving the sidewalk. Of the 137 accidents, 25 per cent were caused by automobiles running into the cars, sometimes after the train had come to a complete stop.

For the entire elimination of all crossings through construction of overhead bridges or underpasses, twenty billion dollars would be needed. Due largely to the same carelessness displayed at grade crossings, an additional 25,000 persons are killed each year in other automobile accidents on streets and roads. If automobilists would show the same care in protecting their own lives and those of their companions that the railroads show in protecting lives entrusted to them, the automobile could be made almost as safe as the railroad passenger car.

As the hazards of automobile travel increase, more and more travelers, particularly among the reasonably careful, will return to the railroads as the safest means of getting from place to place. But the Central of Georgia has no desire to profit either directly or indirectly from automobile tragedies, and it urges its friends and patrons who use automobiles to practice every possible precaution, particularly before venturing upon the tracks of any railroad.

The Lawbreaker on the Air

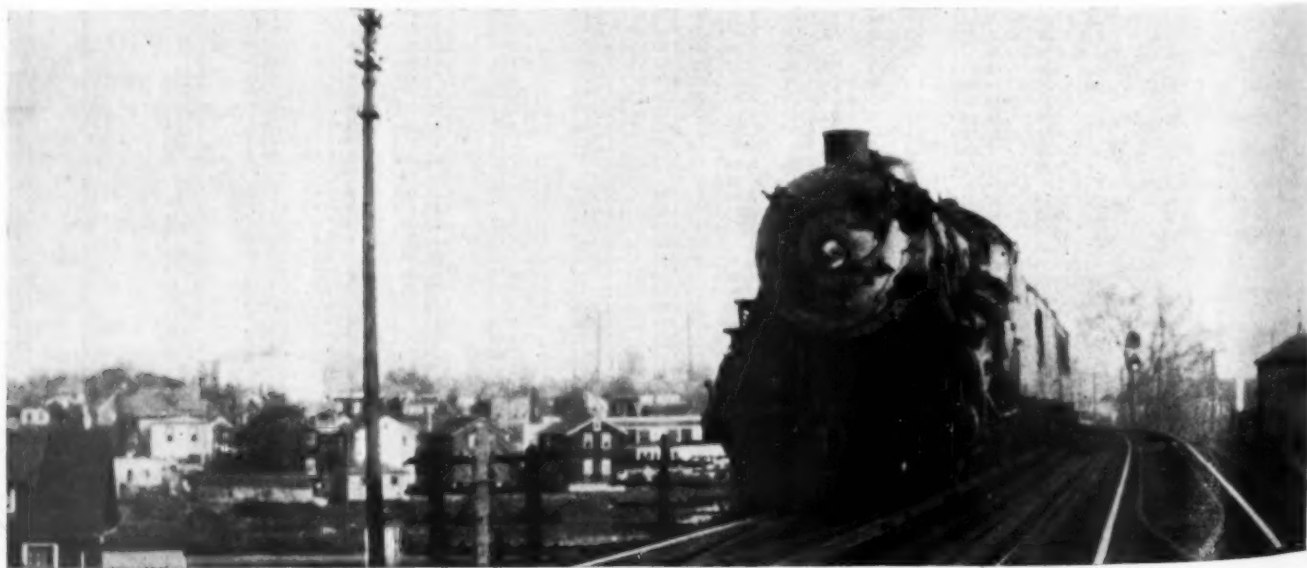
George C. Howard, chief clerk to the superintendent of the Nashville division of the Louisville & Nashville, Nashville, Tenn., who was the author of a play which was given by amateur theatrical companies at a number of cities and towns

along the line of the Louisville & Nashville last winter in Kentucky, Tennessee and Alabama—the play being produced as an entertainment to promote safety on railroads—has written another safety play, called "The Lawbreaker;" and instead of having it played on the public stage, he has had it broadcast by radio; and the results have proved highly gratifying.

The first play, called "The Triangle Club," was the subject of a brief notice in the *Railway Age* of December 22, 1928. The general officers of the road co-operated with the safety department in popularizing that play among the people along the line of the road, and much encouraging enthusiasm was manifested. The play dealt with safe practice among railroad employees and safety at highway crossings; and also contained instructive matter on the value of first aid.

"The Lawbreaker" deals with only one feature of safety, that of the highway crossing problem. It was sent out by station WLAC on May 15, and favorable responses began at once to come in. The cast was made up of a dozen men and a half dozen women, all employees of the road or sons or daughters of employees. The principal character in the play is "Hi Speed" a fast young man, the son of a prominent citizen, and his particular folly was reckless driving with an automobile. With "Vera Fast," his sweetheart, he ran into a train, derailed the locomotive, caused the death of a number of passengers and was himself seriously injured. He was later tried for involuntary manslaughter, convicted and sentenced to imprisonment.

Mr. Howard has made an interesting story, with the obvious morals; and at the same time he includes enough humor to keep the audience well interested. After getting the listener sufficiently agitated, he tells us that the whole story was a dream of the conscience-smitten "Hi" after he had caused serious damage with his car, and, of course, the wild young man repented and resolved henceforth to be a law-abiding citizen.



Passenger Train on the Lackawanna at Lyndhurst, N. J.

Foreign

Electric Traction in New Zealand

Electrification of the line from Christchurch to Lyttelton, New Zealand, was inaugurated on February 14, 1929. The line is seven miles long, has a 3 ft. 6 in. gage and employs 1500-volt direct current locomotives operating from an overhead contact system. The line, including a tunnel, was built in 1867. The first year it was in operation, it carried 123,159 passengers and hauled 50,953 tons of freight. For the year ending March 31, 1928, the number of passengers was 1,125,473 and the freight tonnage 673,446.

To Dedicate New Rail Line In Central America

With the prospect of completion before the end of this month of the new San Salvador and Guatemalan branches of the International Railways of Central America, the Republic of San Salvador will, for the first time, be brought in practical commercial touch with the Gulf and Atlantic coasts of the United States through Guatemala. A good-will mission of representatives from New Orleans and the Mississippi valley sailed from the former place on April 5, to participate in the celebration of the opening of the railroad. This mission was under special invitation from the two republics involved in the railway connection. With the completion of the line, San Salvador is expected to enjoy more rapid development than heretofore.

The country's principal exports are coffee, gold, silver, sugar, indigo, balsam, rubber, tobacco, and rice. The last coffee crop alone amounted to more than \$28,000,000. The new line also gives prospects of a continuous railroad service from the capitals of these two countries though the entire length of Mexico to the United States, which could be accomplished by fast rail facilities in five or six days.

International Railways of Central America

Gross revenues of \$7,758,080, operating expenses of \$4,664,340 and net revenues from railway operations of \$3,093,740 were reported by the International Railways of Central America for the year ending December 31, 1928. The foregoing compare respectively with a 1927 gross of \$7,012,190, operating expenses of \$4,115,763 and a net revenue from operations of \$2,896,427.

The 1928 consolidated net income of the corporation after adjustments was \$2,314,135. Of this latter \$111,256 was applied to sinking funds, \$500,000 to dividends while the balance, amounting to \$1,702,879, was transferred to profit and loss. Selected items from the income statement follow:

	1928	1927
Average Mileage operated ..	692.76	683.20
RAILWAY OPERATING REVENUES	7,758,080	7,012,190
Maintenance of way and structures	1,061,350	889,470
Maintenance of Equipment	1,008,795	853,012
Transportation	1,940,795	1,792,315
TOTAL OPERATING EXPENSES ..	4,664,340	4,115,763
Operating ratio	60.12	58.69
NET REVENUE FROM OPERATIONS	3,093,740	2,896,427
Railway tax accruals	296,229	261,081
Railway operating income ..	2,782,287	2,634,944
Non-operating income	316,048	198,242

* * * *

GROSS INCOME	3,384,311	2,990,307
Interest on funded debt ..	951,915	897,236
TOTAL DEDUCTIONS FROM GROSS INCOME	1,070,176	997,552
NET INCOME	2,314,135	1,992,755
Income applied to sinking funds	111,256	86,558
Dividend appropriations of income	500,000	500,000
Surplus for year carried to profit and loss	1,702,879	1,406,196

Swiss Roads Enjoy Best Post-War Year

Railways of Switzerland, during 1928, experienced their most profitable year since the war, according to recent reports to the United States Department of Commerce. These preliminary statements indicate that exceptionally good weather during the summer and an abundance of snow during the winter served to attract 6,000,000 more travelers and tourists than visited the country during the previous year. Thus passenger revenues rose to 151,359,000 francs (\$29,212,300) from a 1927 figure of 142,821,000 francs or \$27,564,500. Likewise favorable business conditions caused freight revenues to increase by about \$2,412,500 bringing total operating revenues to the equivalent of \$80,873,400 as compared with 1927 revenues of approximately \$76,336,300.

Operating expenses amounted to about \$49,025,000, an increase over the previous year. This increase, however, is attributed almost entirely to the new law raising appropriations to be set aside for disability and pension insurance. Of the 3,775 kilometers of standard gage railroad in Switzerland, 2,950 kilometers are owned by the government and these federal railways control over 90 per cent of the country's rail traffic.



Underwood & Underwood

The New Railroad Terminal for the City of the Vatican, Formerly the Station of St. Peters, in Rome, Which Has Been Ceded to the Holy See by the Italian Government

Traffic

Unification of Eastern Auction Terminals Demanded

The unification of eastern auction terminals for the marketing of California fruits and vegetables was demanded by Charles E. Virden, general chairman of the Pacific Coast Transportation Advisory Board on May 13 in recommendations to growers and shippers relative to eastern auction facilities. The recommendations are based upon the findings of the perishable committee of the Transportation Board following an analysis of the eastern terminal situation.

Mr. Virden, in his announcement, states, "This organization went on record during 1926 as being opposed to railroad action that would not centralize or 'umbrella' auction buyers. Several auction terminals in any one town necessarily mean the splitting of buyers and the one who really suffers is the grower, by reason of the loss of buying power. "Therefore, in the judgment of the perishable industry of California, which shipped something like 415,000 cars of perishables last year, terminals should be concentrated, for the purpose of obtaining complete buying power and getting the very best results for the grower.

"It develops that all railroads are not in accordance with the resolution and are opposed to the unification proposition. We stand by our policy and firmly believe our only safeguard for the perishable industry engaged in selling at auction particularly, is the unification of terminals. We want the buyers concentrated under one 'umbrella' and the offerings placed before them under that one roof."

Conference on Divisions With Barge Line Postponed

The conference scheduled for May 22 between the traffic executives of the railroads and officers of the Inland Waterways Corporation, in compliance with the recent order of the Interstate Commerce Commission directing the rail carriers to enter into negotiations with the waterways corporation for the purpose of establishing equitable divisions of the joint rail and barge rates which it required to be established, was postponed at the request of Gen. T. Q. Ashburn, chairman and executive of the waterways corporation. According to the commission's order the negotiations were to begin within 30 days from the date on which the joint rates prescribed were to become effective, on August 27. The railroads proposed an immediate conference, which was arranged for, but it developed that General Ashburn could not assemble the full committee representing the government barge line on that date and T. C. Powell, president of the Chicago & Eastern Illinois, who is chairman of the committee of railway traffic executives, announced that it would be held as soon as a definite date can be arranged for.

The rail carriers and the waterways corporation are directed to inform the

commission within 120 days from the date of publication of the joint rates whether they have been able to agree upon equitable divisions, and if they have been unable to agree, to state the divisions which they respectively consider equitable and their reasons therefor.

Wheat Rate Reduction in Canada

The wheat rate cut by Canadian railroads to meet the reduction made by the United States lines will be small by the lake route, according to evidence in Montreal last week.

It is explained that the reductions will be slight, for the reason that the average rate for this movement is in close proximity to the cost of carrying the grain, a condition which is believed to have prevailed with the railroads prior to the two-cent cut.

The new rate, it is explained, must be sufficiently low to attract the business, which means that the quotation will be in the vicinity of 8½ cents from the Head of the Lakes to Montreal, bringing the all-up charge to the shipper to 9 cents per bushel, adding in the usual brokerage and insurance charges. Earnings of Upper Lake shipowners now run around 2½ cents per bushel from the Head of the Lakes to Georgian Bay ports, which, with the 6.6 cents charged by the railroads for hauling the export wheat on to Montreal, and brokerage and insurance charges, bring the all-up water and rail transportation rate to 9.350 cents per bushel, or approximately one-third of a cent per bushel more than the all-water rate.

In an interview T. R. Enderby, managing director of the Canada Steamship Lines, said: "The reduction of two cents per bushel in the freight rate on grain from Buffalo to the American Atlantic seaboard may be interpreted as a some-

what belated attempt on the part of the United States railroads to influence the movement of grain traffic now enjoyed by Montreal and the St. Lawrence route to the Buffalo gateway. It was made at a time coincident with the political expedencies in the United States, and in that phase of the situation it was nothing more than an effort to offset the disadvantage of the price at which American grain was being held, in comparison with the price of other grain in the world's markets. An attempt to solve any marketing or price problem of this magnitude, particularly such an important one as that of the United States or Canadian export wheat crop, by the method of having the transportation system absorb a part of the differential in the price, needs no comment. The reduction by the Canadian railroads in the rate from Georgian Bay ports of two cents a bushel is the logical reply. By means of this cut, the comparative rates and differentials are maintained, and the only result secured is a decrease in the revenue of both United States and Canadian railroads. To the argument that this reduction in rate will result in increased business, the answer is to be found in the conditions as they now exist. Increased business has not resulted, and will not result. Grain traffic through Buffalo to the United States Atlantic seaboard will not be increased at the cost of the Montreal-St. Lawrence route.

Grand Trunk's New Ticket Office in Chicago

The Grand Trunk Western has opened a ticket office and information bureau in the Willoughby Tower, Chicago, in which the architects have followed the Tudor style and produced a more than usually handsome chamber with panelled walls, hand-modeled plaster, with beams, lights and fixtures in keeping with the



Grand Trunk Ticket Office, Willoughby Tower, Chicago

general scheme. The walls are panelled in English oak to a height of about five feet. The color scheme is of soft browns and gold. The furniture is of English oak and walnut in Jacobean design. The walls are hung with paintings of Jasper National Park and other Canadian scenery. A feature of the office is a special itinerary room for patrons who desire to plan a trip or a tour.

Publication of Reduced Wheat Rates Authorized

Special permission to the railroads to publish on short notice tariffs covering the emergency reduced rates of wheat and flour for export agreed upon by the railroads at the suggestion of President Hoover was finally granted by the Interstate Commerce Commission on May 21 and it was then the expectation that the rates would be made effective about May 26. The reduced rates on ex-lake grain, designed primarily to reduce the congestion at Buffalo, had been allowed to take effect on May 12, but a long series of conferences between the representatives of the roads and of the commission's Bureau of Traffic were necessary to complete the details of the applications for authority to publish the other rates proposed, and some of the provisions of the tariffs themselves.

On May 21 the commission announced that publication of emergency reduced rates on wheat and wheat flour in straight carloads, for export, on not less than one day's notice and without regard to the provisions of rules 4(i), 7(b), 8(f), 9(a), 9(c) and 54 (a) of Tariff Circular 20 had been authorized as follows:

By eastern carriers, rates, rules and regulations set forth in sixth section applications 511 and 512 of Agent W. S. Curlett, each dated May 18, 1929.

By western carriers, rates, rules and regulations set forth in Agent E. B. Boyd's sixth section application 3445 of May 9 and in supplements 1, 2 and 3 thereto, dated May 17, and May 21, respectively, except that the tariffs may not contain clauses to the effect that they are "issued subject to approval by the Interstate Commerce Commission," and except that in lieu of paragraph D of item 20 of Exhibit A to supplement 2 to said application the following is approved:

On shipments of wheat in bulk moved under this tariff from points of origin named in item 1 to Lake Michigan or Lake Superior ports and thence via lake to lower ports, charges based on the domestic rates will be collected at time of movement. These charges will be reduced to the basis shown herein, provided shipments are exported from north Atlantic ports not later than November 30, 1929, and further provided that shipments either leave Lake Superior or Lake Michigan ports on or before September 30, 1929, or if the movement from such lake ports is after that date, such movement must be within 10 days of arrival at such lake port.

Fourth section relief sufficient to permit the establishment of the rates, rules and regulations embraced in the second

and third paragraphs hereof also was authorized, as well as an order amending all outstanding orders in formal cases and suspension cases sufficient to permit the publication of the rates proposed.

Sixth section application No. 3446 of Agent E. B. Boyd dated May 9 and amended May 10, sixth section application 3453 of Agent E. B. Foyd dated May 16 and sixth section application 359 of the Kansas City Southern dated May 9 (filed May 17), were denied.

W. M. Hough, agent and attorney for

the Mississippi-Warrior Service of the Inland Waterways Corporation, filed with the commission on May 17 applications for authority to publish on short notice temporary emergency tariffs reducing the rail-barge rates on wheat and flour corresponding with those of the rail lines.

On May 22 the commission issued a similar order authorizing the Inland Waterways Corporation to publish tariffs on short notice making reductions in rail-barge rates to correspond with those of the rail lines.

Equipment and Supplies

Locomotives

THE ROYAL STATE RAILWAYS OF SIAM have ordered six 4-6-2 type locomotives from the Baldwin Locomotive Works.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered ten 2-8-2 type locomotives from the American Locomotive Company. Inquiry for this equipment was reported in the *Railway Age* of March 30.

Freight Cars

THE MANILA RAILROAD is inquiring for 100 flat cars and 100 box cars of 30 tons' capacity.

THE DELAWARE & HUDSON is asking for prices on the repair of 150 composite hopper cars.

THE WICHITA FALLS & SOUTHERN has ordered 15 ballast cars from the American Car & Foundry Company.

THE ANGLO-MEXICAN PETROLEUM COMPANY is inquiring for ten tank cars of 4000 gal. capacity.

THE PITTSBURGH STEEL COMPANY is now inquiring for ten all-steel low-side gondola cars of 75 tons' capacity.

THE CHICAGO, NORTH SHORE & MILWAUKEE has ordered one caboose car from the American Car & Foundry Company.

THE ERIE has ordered 25 caboose cars from the Magor Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of May 4.

THE CHICAGO & ALTON will make repairs to 130 box cars in its own shops. Inquiry for prices on the repair of this equipment was reported in the *Railway Age* of May 11.

THE VIRGINIA-CAROLINA CHEMICAL CORPORATION, Richmond, Va., has ordered five tank cars of 50 tons' capacity from the General American Tank Car Corporation. These cars are to be used for carrying sulphuric acid.

THE BALTIMORE & OHIO has ordered 1,000 gondola cars from the American Car & Foundry Company, 1000 hopper cars from the Bethlehem Steel Company,

1000 hopper cars and 1000 box car bodies from the Standard Steel Car Company. Inquiry for 3000 cars was reported in the *Railway Age* of April 13.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 250 high-side, drop end, steel gondola cars of 50 tons' capacity from the American Car & Foundry Company and 500 automobile box cars from the Standard Steel Car Company. Inquiries for this equipment were reported in the *Railway Age* of March 16 and May 4.

Passenger Cars

THE NORTHERN PACIFIC has ordered ten baggage and mail cars 70 feet long from the American Car & Foundry Company.

THE BALTIMORE & OHIO has ordered seven cafe parlor cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 9.

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for 10 baggage and mail cars with 30 ft. mail compartment and 5 baggage and mail cars with 15 ft. compartment. This is in addition to other inquiries for passenger equipment reported in the *Railway Age* of May 18.

THE NEW YORK CENTRAL has ordered twenty steel underframe passenger coach bodies and five steel underframe passenger and baggage car bodies, all to be 70 feet long, from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of April 27.

Signaling

THE SOUTHERN has ordered from the General Railway Signal Company an electric interlocking, 56 levers, to be installed at Fourth street, Louisville, Ky.

THE LOS ANGELES & SALT LAKE has ordered from the Union Switch & Signal Company a mechanical interlocking, 12 levers, for a drawbridge at Long Beach, Cal.

THE CANADIAN PACIFIC has ordered from the General Railway Signal Com-

pany material for the installation of automatic block signals between Spence's Bridge, B. C., and Ruby Creek, 97 miles. The order includes 155 model 2A signals.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company, for installation on the Toledo division, between Mansfield, Ohio, and Detroit, Mich., 100 miles, 125 position-light signals, 450 relays, 257 rectifiers and other material.

THE TEXAS & PACIFIC has ordered from the General Railway Signal Company material for the installation of automatic block signals on its line between Alexandria, La., and Livonia, 80 miles. The order includes 178 color-light signals and other material.

THE LIMA LOCOMOTIVE WORKS has ordered from the General Railway Signal Company intermittent inductive automatic train control apparatus for 20 locomotives which are being built for the Erie.

THE CHESAPEAKE & OHIO has ordered from the Union Switch & Signal Company an electro-pneumatic interlocking, nine working levers, for Hinton, W. Va.; also a mechanical interlocking for Walkerford, Va.

THE PERE MARQUETTE has ordered from the Union Switch & Signal Company material for remote operation of switches and signals at Clark Avenue, Detroit, Mich. The order includes a 10-lever interlocking machine, eight search-light type signals, four electric switch movements, 45 relays and other material.

THE BOSTON & ALBANY has ordered from the General Railway Signal Company, 40 color-light signals, with other material, to be used on the line between Boston, Mass., and Worcester, 44 miles, partly double track, partly four track. Semaphores are now in use on this section of the road.

THE READING COMPANY has contracted with the Union Switch & Signal Company for the complete installation of interlocking and automatic block signals on its line between Reading Terminal, Philadelphia, and Wayne Junction, five miles. This part of the road is to be electrified and the new signal work is to be carried out in connection with other changes in the track and roadway. The contract includes 241 color-light signals, superseding older types, 212 alternating current track circuits, and several automatic substations; and there is to be a general rehabilitation of the existing interlocking plants.

Machinery and Tools

THE MISSOURI PACIFIC has ordered a 10-ton overhead crane from the Shaw Electric Crane Company.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for six grinders and a pipe machine.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered two car axle

lathes from Manning, Maxwell & Moore, Inc.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is inquiring for a brass boring machine and miscellaneous tools.

THE UNION PACIFIC is inquiring for a 36-in. shaper, an 18-in. by 8-ft. lathe, six grinders, a plate roll, three flue welders, an axle lathe and two engine lathes.

THE RICHMOND, FREDERICKSBURG & POTOMAC has ordered one Putnam, 90 in. journal turning, quartering and crank pin turning machine, from Manning, Maxwell & Moore, Inc.

THE CHESAPEAKE & OHIO is inquiring for 27 overhead cranes, including 24 2½-ton 3-motor floor-controlled cranes and four 5-ton cranes.

THE CHICAGO & ILLINOIS MIDLAND has ordered for its Springfield, Ill., shops, one Monarch 20-in. by 12-ft. helical geared head, Timken roller spindle, heavy duty, motor driven lathe, from Manning, Maxwell & Moore, Inc.

Iron and Steel

THE CLEVELAND UNION TERMINAL COMPANY is inquiring for from 600 to 700 tons of structural steel for train sheds.

THE UNION PACIFIC is inquiring for 600 tons of structural steel for a viaduct at Laramie, Wyo.

THE NORFOLK & WESTERN has ordered 400 tons of steel for various bridges, from the Virginia Bridge & Iron Company.

THE CANADIAN NATIONAL has ordered 5,000 tons of structural steel for a hotel at Vancouver, B. C., from the Dominion Bridge Company.

THE PENNSYLVANIA has ordered 550 tons of structural steel for a bridge at Columbus, Ind., from the American Bridge Company.

THE READING COMPANY has ordered 4000 tons of steel, for electrification work, from the Bethlehem Steel Company.

THE CHESAPEAKE & OHIO has ordered 250 tons of steel for a bridge in West Virginia, from the American Bridge Company.

THE CHICAGO & NORTH WESTERN has ordered 5,500 tons of structural steel for miscellaneous bridge work from the American Bridge Company.

THE WABASH has ordered 1,500 tons of structural steel for a bridge at Danville, Ill., from the American Bridge Company.

THE PEACE RIVER COUNTRY (Canada) continues to attract. In the month of April, the Canadian Pacific delivered to the Alberta Government Railways for that region 42 cars of settlers' effects.

Supply Trade

Joshua S. Logan has been elected president of the National Lumber Creosoting Company, Texarkana, Ark.-Tex.

The Timken Roller Bearing Company, Canton, Ohio, is constructing a second unit to its plant at Gambirinus, Ohio.

A. W. Kempe, formerly purchasing agent of the Pettibone Mulliken Company, has associated himself with the Guilford S. Wood Company, Chicago, as railroad sales representative.

J. D. Wallace and Company, Chicago, manufacturers of portable woodworking machinery, have taken over the John T. Towsley Manufacturing Company, Cincinnati, Ohio, manufacturers of large woodworking machinery and factory trucks. The John T. Towsley Manufacturing Company will continue to operate under its own name, as a separate corporation and as a division of J. D. Wallace and Company.

The Chicago Steel & Wire Company and its associate, Fusion Welding Corporation, One Hundred and Third street and Torrence avenue, Chicago, have made plans for the construction of new general offices, adding 8,000 sq. ft. to the space they now occupy. Increased business has made necessary this additional space. F. O. Webber, 229 Boulevard Des Allies, Pittsburgh, Pa., has been appointed sales manager of the Pittsburgh district for the Fusion Welding Corporation, Chicago.

Charles D. Morton, secretary of the Morton Manufacturing Company, has been elected vice-president to succeed H. H. Schroyer, deceased. Mr. Morton was born in Chicago in June, 1894 and received his early education at Culver



Charles D. Morton

Military Academy. He graduated from the University of Wisconsin in 1917 and immediately thereafter entered the army. At the termination of the war, he was serving as a first lieutenant in the fortieth regiment of the fourteenth divi-

sion of infantry. After the war he entered the employ of the Morton Manufacturing Company and on January 1, 1920, was elected secretary, which position he has held until his recent appointment.

L. A. Osborne, president of the **Westinghouse Electric International Company**, has completed negotiations for the formation, jointly with **Schneider et Cie**, the French steel works, of an electrical manufacturing company in France. The present electrical factory of **Schneider** at **Champagne** will be included in this new organization and substantial cash investment will be made by the **Schneider** and **Westinghouse** companies for expansion and working capital. This newly formed company will manufacture under licenses and patents of the **Westinghouse Company** and will specialize in electric power apparatus, electric locomotives and ship propulsion machinery. The **Westinghouse Company** will have representatives on the board of directors of the company.

Obituary

Raymond H. Van Nest, vice-president, secretary and a director of the **U. S. L. Battery Corporation**, **Niagara Falls, N. Y.**, died on May 10 in the **John Hopkins** hospital at **Baltimore, Md.** Mr. Van Nest had been connected with the corporation for about 15 years.

Henry W. Blake, senior editor of the **Electric Railway Journal**, died on May 20 at his home in **Englewood, N. J.**, at the age of 64. Mr. Blake was born in **New Haven, Conn.**, and was graduated from **Yale University** in 1886. He later studied electrical engineering at the **Massachusetts Institute of Technology**. After leaving **M. I. T.**, he became associated with the **Sprague Electric Railway & Motor Company** in constructing electric railways, and after the consolidation of that company with the **Edison General Electric Company**, he remained with the latter. From 1891 to 1893 he was associate editor, and from 1894 to 1923, editor-in-chief of the **Electric Railway Journal** which was formerly the **Street Railway Journal**. Since 1923, Mr. Blake has been senior editor of the same publication. He was joint author with **Walter Jackson** of **Electric Railway Transportation**, published in 1917.

Trade Publication

LOOKING AHEAD TWENTY YEARS.—The **Grasselli Chemical Company**, **Cleveland, Ohio**, has issued a 38-page booklet on wood preservation, with particular reference to the use of zinc chloride for this purpose. Numerous illustrations are given of installations of timber and lumber treated with this preservative in various types of structures, together with the results of a number of service tests. A complete index of both the text and illustrations is provided.

Construction

ATCHISON, TOPEKA & SANTA FE.—The Interstate Commerce Commission has authorized the **Kansas City, Mexico & Orient (Texas)** to construct a line of railroad from a connection with its existing line at **San Angelo, Tex.**, southward to **Sonora**, 65 miles; estimated cost \$2,200,000.

ATCHISON, TOPEKA & SANTA FE—LOS ANGELES & SALT LAKE.—These railroads and the city of **Los Angeles, Cal.**, have applied to the **Railroad Commission of California** for permission to construct the proposed **Sixth street viaduct** over the **Los Angeles river** and the tracks of the two railroads. The estimated cost of the project including the construction of an underpass under the tracks of the **Atchison, Topeka & Santa Fe** is \$2,162,900. Under the terms of an agreement the **Salt Lake** will expend \$125,700 for the construction of an elevated track structure from the river bank to the **Southern Pacific** passenger station and an elevated structure for the use of the **Pacific Electric**. Of the balance of the cost the city will bear 75 per cent and the two railroads 12.5 per cent each.

BALTIMORE & OHIO—CHICAGO, BURLINGTON & QUINCY—ST. CHARLES AIR LINE—PENNSYLVANIA.—These railroads plan, subject to the approval of the **City Council**, the elimination of the railway crossings at **Fifteenth street** place and **Stewart avenue, Chicago**, which will do away with about 746 train stops a day. The cost of the entire project is estimated at \$5,000,000 with \$3,000,000 chargeable to separation of grades, and necessary track changes involving an expenditure of about \$2,000,000. It is planned to elevate the tracks of the **St. Charles Air Line** and the **Baltimore & Ohio** above those of the **Chicago, Burlington & Quincy** and the **Pennsylvania**.

BOSTON & ALBANY.—This company has awarded a contract to the **New England Construction Company, Springfield, Mass.**, for the construction of a concrete arch on its lines in **Worcester, Mass.**

BOSTON & MAINE.—A contract has been awarded by this road to the **New England Construction Company, Springfield, Mass.**, for the rebuilding of a bridge on its lines near **Hoosick, N. Y.**

CANADIAN PACIFIC.—The city of **Regina (Sask.)** plans to apply to the **Board of Railway Commissioners** for permission to construct a subway under the tracks of this company at **Winnipeg street, Regina**. The total cost of the construction, about \$200,000, will be borne by the city, the railway commissioners and the **Canadian Pacific**.

CHESAPEAKE & OHIO.—This company has awarded a contract to **Milo R. Hanke, Cincinnati, O.**, for the construction of a

new passenger station at **Paintsville, Ky.**, to cost approximately \$71,400.

CHESAPEAKE & OHIO.—The Interstate Commerce Commission has authorized the **Sewell Valley** to construct an extension of its **Glencoe & Duo branch** 1.4 miles in **Greenbrier County, W. Va.**; approximate cost \$715,000.

CHICAGO & NORTH WESTERN.—A contract has been let to **B. E. Short, Sioux City, Iowa**, for the construction at that point of a one-story terminal building which will have outside dimensions of 40 ft. by 48 ft.

ERIE.—Construction work, involving general repairs to the pier shed and a new concrete flooring, is now under way on this company's **Pier No. 20** in the **North river, New York**. The pier is used as a part of the road's fruit terminal. A contract for the work has been awarded to **Allen Spooner & Son, New York**.

ERIE.—This company has awarded a contract to **James A. Hart, New York**, for the construction of a new two-story freight house and team tracks at **Bloomfield, N. J.** This building will be of brick construction, 150 ft. in length and 35 feet wide. Bids also have been received for the elimination of a highway grade crossing on this company's lines at **East Corn-ing, N. Y.**

GRAYS HARBOR-PACIFIC.—This company has filed an application with the **Washington Department of Public Works** for permission to construct a toll railroad for the transportation of forest products between **tidewater on Grays Harbor** at **Preacher's Slough, Wash.**, to **Brooklyn**, about 15 miles.

KANSAS CITY, MEXICO & ORIENT.—Bids will be received until **June 17**, for the construction of a branch line from **San Angelo, Tex.**, to **Sonora**, 65 miles.

MEDFORD LOGGING RAILROAD.—The **Owen-Oregon Lumber Company**, which operates this railroad, formerly the **Pacific & Eastern**, between **Medford, Ore.**, and **Butte Falls**, 32 miles, contemplates the construction of an extension from the latter point into the **Klamath Falls** district in **Oregon**.

NEW YORK CENTRAL.—This company plans the elimination of two highway grade crossings on the **West Shore**, south of **Schenectady, N. Y.**, by the construction of two overhead bridges, estimated to cost \$390,000.

NORFOLK & WESTERN.—Authority has been given by the board of directors of this company for the following construction projects: The lengthening of eight stalls in the roundhouse at **Bluefield, Va.**; the extension of eight bridges on the **Wayne branch**, and the construction of new piers and abutments under bridge No. 36 on the **Abingdon branch**.

NORTHERN PACIFIC.—A contract for the completion of the construction of a steel car repair shop at **Laurel, Mont.**, has been let to **J. S. Sweitzer & Son, St. Paul, Minn.** The work to be done under this

contract involves the expenditure of about \$40,000.

OWENSBORO-ROCKPORT BRIDGE COMPANY.—The Interstate Commerce Commission has authorized this company to construct a line of railroad from Owensboro, Ky., to Rockport, Ind., approximately 12 miles, involving a joint railway and highway bridge over the Ohio river in the vicinity of Owensboro; estimated cost \$5,203,275, of which \$3,454,000 represents the cost of the bridge.

PENNSYLVANIA.—Plans have been announced in connection with this company's new passenger and express terminal project at Pittsburgh, Pa., in a communication from the company to the Pittsburgh city council. According to the plan, the passenger station will front on Penn avenue in the vicinity of Thirteenth street. Also included in the project is a new Eleventh street, 52 ft. in width, to be constructed west of the existing highway, between Penn and Liberty avenues. The present Eleventh street will become a traffic oval. Ground which the city will receive from the railroad under the agreement will permit a continuation of Grant street to a connection with the widened Penn avenue. It is proposed to widen Penn avenue to a minimum of 110 ft. from Eleventh street to a point near Eighteenth street. A new diagonal street from this point is to connect with Liberty avenue, near Twenty-first street. The widening of Twentieth street between the diagonal street and Penn avenue is included in the proposals. The railroad company owns practically all of the land which will be required in the street changes and this will be deeded to the city. The city will reciprocate by turning over other lands including a portion of

No. 15 Engine house tract. Certain school property also is involved.

PITTSBURGH, LISBON & WESTERN.—This company has filed with the Interstate Commerce Commission a petition for a reconsideration of the case in which Division 4 denied its application for authority to construct extensions of its lines between Smith's Ferry, Pa., and the Youngstown, Ohio, district. The company states that it has a new plan to present.

PORT ANGELES WESTERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Forks to Spruce, Wash., 9 miles.

TEMISKAMING & NORTHERN ONTARIO.—This company plans improvements to its system including the renewal with 90-lb. rail of approximately 15 miles of line, the enlargement of its passenger station at Kirkland Lake, Ont., and the enlargement of its freight warehouse at Englehart, Ont. All of this work will be done by company forces.

UNION PACIFIC.—A contract for furnishing the steel for the construction of a grade crossing elimination structure at University avenue, Laramie, Wyo., has been let to the Omaha Steel Works. A contract has been awarded to Nels Swenson, Laramie, for the construction of the abutments, while the erection of the steel will be undertaken by company forces. The cost of the structure, about \$200,000, is being borne by the city and the railroad. A contract has been let to Halin & Hanson, Spokane, Wash., for the construction of a warehouse and sales building at Spokane for the use of the Caterpillar Tractor Company. This building is estimated to cost \$32,000.

tentative plan for the consolidation of the railroads, issued in 1921. The Monon, after asking the commission to dismiss the application of the Baltimore & Ohio in so far as it sought to include the Monon in its proposed system, asked the commission to re-open the consolidation proceedings and allocate its line to the Southern and Louisville & Nashville, which jointly control it.

CHESAPEAKE & OHIO.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized an issue of \$5,025,000 of 4½ per cent equipment trust certificates, to be sold at not less than 96.57 and interest.

CENTRAL WEST VIRGINIA & SOUTHERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Hendricks to Whitmer, W. Va., 29.5 miles.

CORPUS CHRISTI TERMINAL ASSOCIATION.—*Operation.*—The Interstate Commerce Commission has authorized the San Antonio, Uvalde & Gulf, the St. Louis, Brownsville & Mexico, the Texas-Mexican, the San Antonio & Aransas Pass, and the Texas & New Orleans, to operate under the above mentioned name the railroad properties of the Neuces County Navigation District No. 1 and certain branches of the S. A. U. & G. and S. A. & A. P., which tracks constitute port terminal facilities at Corpus Christi, Tex.

FLORIDA EAST COAST.—*Annual Report.*—The annual report of this company for 1928 shows net deficit after interest and other charges of \$1,697,425, as compared with net deficit of \$1,774,762 in 1927. Selected items from the income statement follow:

FLORIDA EAST COAST			Increase or Decrease
	1928	1927	
Average mileage operated	856.37	851.46	4.91
RAILWAY OPERATING REVENUES	13,874,723	17,859,635	—3,984,912
Maintenance of way	2,459,385	3,904,292	—1,444,908
Maintenance of Equipment	2,136,317	2,938,108	—801,791
Transportation	4,290,761	6,385,368	—2,094,607
TOTAL OPERATING EXPENSES	9,889,207	14,375,826	—4,486,619
Operating ratio	71.3	80.5	9.2
NET REVENUE FROM OPERATIONS	3,985,516	3,483,809	501,706
Railway tax accruals	1,749,447	1,601,422	148,025
Railway operating income	2,196,763	1,865,708	331,055
Hire of Equipment			
Dr.	729,575	1,210,084	—480,509
Joint facility rents—Net Dr.	40,570	63,419	22,850
NET RAILWAY OPERATING INCOME	1,426,619	592,205	834,414
Non-operating income	150,181	947,266	797,085
GROSS INCOME	1,576,800	1,539,470	37,329
Interest on funded debt	3,142,700	3,182,350	39,650
TOTAL DEDUCTIONS FROM GROSS INCOME	3,274,225	3,314,232	40,008
NET INCOME (Def.)	1,697,425	1,774,762	77,337

Railway Finance

ATCHISON, TOPEKA & SANTA FE.—*Control of K. C. M. & O.*—The New Orleans Joint Traffic Bureau and other commercial and civic organizations of that city have petitioned the Interstate Commerce Commission to re-open the case in which it authorized this company to acquire control of the Kansas City, Mexico & Orient. The petition states that the rate and traffic policy of the Orient was such as to permit competition between the port of New Orleans and Texas ports, but that the policy of the Santa Fe has sought to restrict movement through the Texas ports "to the detriment and disadvantage of the port of New Orleans and the public generally."

ATCHISON, TOPEKA & SANTA FE.—*Bond of Subsidiary.*—The Clinton-Oklahoma-Western, a subsidiary of the Santa Fe, has been authorized by the Interstate Commerce Commission to issue one first mortgage 6 per cent bond, Series A for \$2,000,000, to be delivered

to the Santa Fe at par in satisfaction of an equal amount of indebtedness.

BOSTON & MAINE.—*Equipment Trust Certificates.*—Brown Bros. & Co., and Evans, Stillman & Co., have offered \$1,710,000 of 5 per cent equipment trust certificates of this company, priced to yield from 6 per cent on the earliest maturity to 5.8 per cent on the last ones, which mature in 1944.

CANADIAN NATIONAL.—*Equipment Trust.*—A syndicate of 10 banking concerns is offering \$18,000,000 of this company's 5 per cent equipment trust certificates, series K of 1929, maturing between 1930 and 1944, at prices yielding from 5.75 per cent down to 5.10 per cent—the latter for the final maturities.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Reopening of Consolidation Proceedings Denied.*—The Interstate Commerce Commission has denied this company's petition for a re-opening of the proceedings on its

GREAT NORTHERN.—Equipment Trust Certificates.—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of an issue of \$1,350,000 of Western Fruit Express 4½ per cent equipment trust certificates to be used in financing the construction of 800 steel underframe refrigerator cars at the company's shops.

PERE MARQUETTE.—New Directors Elected.—Ten new members were elected to the board of directors of this company at Detroit, Mich., on May 21, seven of whom are also directors of the Chesapeake & Ohio and the remaining three representatives of Van Sweringen interests. The newly elected directors are: John J. Bernet, president of the Erie; George T. Bishop, Cleveland, O.; Alva Bradley, Cleveland; James E. Davidson, Bay City, Mich.; Herbert Fitzpatrick, vice-president and general counsel of the Chesapeake & Ohio; William J. Harahan, president of the Chesapeake & Ohio; Otto Miller, Cleveland; O. P. Van Sweringen, chairman of the board of the Chesapeake & Ohio; Michael Gallagher, president of the Pennsylvania Coal Company; Frank H. Ginn, president of Ohio & Pennsylvania Coal Co. The members who were re-elected are: Frank H. Alfred, president of the Pere Marquette; Walter W. Colpitts, New York; Stanford T. Crapo, Detroit; John Stedman, Newark, N. J.; Eugene V. R. Thayer, New York. Out of 686,750 shares of stock outstanding, 506,898 were voted at the meeting.

KANSAS CITY PUBLIC SERVICE.—Trackage Rights.—The Interstate Commerce Commission has authorized this company to operate under trackage rights to provide switching service over the line of the Kansas City, Merriam & Shawnee between Rosedale and Rose Hill, Kan., 7 miles.

KANSAS CITY SOUTHERN.—Anti-Trust Case.—Testimony showing that this company has completely divested itself of its holdings of stock in the Missouri-Kansas-Texas and St. Louis Southwestern, without any "strings" to the stock, and that it has completely abandoned its plans for bringing about a unification of the three properties was presented at a hearing on May 20 and 21 on the complaint issued by the commission charging it with violation of the Clayton law in the acquisition of the stocks without its permission. At the conclusion of this testimony Director Mahaffie of the commission's Bureau of Finance, who presided, stated that if the commission finds that proof has been made of the bona fide divestment of the stock the proceeding will be discontinued, but if the commission does not so find the case will be assigned for further hearing on the complaint. Witnesses presented on behalf of the Kansas City Southern were cross-examined by W. E. Meyer, representing minority stockholders of the Cotton Belt, and R. C. Duff, president of the Waco, Beaumont, Trinity & Sabine, apparently in an effort to show that some "strings" still existed. Harry B. Lake, of Ladenburg, Thalmann & Co., testified as to the sale of 450,000 shares of M-K-T

stock held by the K.C.S., including 287,616 shares disposed of by a syndicate headed by that firm and the National City Company. A large part of the stock, he said, was taken by individual holders of K.C.S. stock and the rest sold through brokers in the market, and he testified that the firm or its members now own no stock of the St. L.S.W. or M-K-T except 4,500 shares of preferred stock of the M-K-T. Mason B. Starring, a director of the K.C.S., said he had been made chairman of a committee to negotiate a sale of 135,000 shares of Cotton Belt stock, which had been sold to New York Investors, Inc. He said that L. F. Loree, chairman of the board, had stated it was important that the stock be disposed of before the date set for the hearing on the commission complaint. The purchaser had stated, he said, that it intended to hold the block intact, but there was no legal obligation to do so and nothing was said as to how long it should hold it. Officers of New York Investors, Inc., also testified that no conditions were attached to the purchase.

MISSOURI-ILLINOIS.—Bonds.—Dillon, Reed & Co., Harris, Forbes & Co., Spencer Trask & Co., and Stone & Webster & Blodget are offering \$3,500,000 thirty-year first mortgage 5 per cent bonds, series A, of this company at 94, which will make the yield approximately 5.4 per cent.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—Annual Report.—The annual report of this company for 1928 shows net income after interest and other charges of \$2,972,668, as compared with net income of \$2,325,821. Selected items from the income statement follow:

NASHVILLE, CHATTANOOGA & ST. LOUIS			
	1928	1927	Increase or Decrease
Average mileage operated	1,259.76	1,259.78	— .02
RAILWAY OPERATING REVENUES	23,335,033	22,905,626	429,407
Maintenance of way	3,128,239	3,124,693	3,546
Maintenance of Equipment	4,919,654	4,885,192	34,462
Transportation	8,061,823	8,272,065	210,242
TOTAL OPERATING EXPENSES	18,127,193	18,282,454	155,261
Operating ratio	77.68	79.82	2.14
NET REVENUE FROM OPERATIONS	5,207,840	4,623,172	584,668
Railway tax accruals	978,923	960,997	17,926
Railway operating income	4,226,778	3,656,714	570,065
Equipment rents	258,708	32,878	225,830
Joint facility rents	264,826	217,426	47,400
NET RAILWAY OPERATING INCOME	4,232,896	3,841,261	391,635
Non-operating income	469,150	269,947	199,203
GROSS INCOME	4,702,046	4,111,208	590,838
Rent for leased roads	806,506	806,506	—
Interest on funded debt	835,729	904,875	69,146
TOTAL DEDUCTIONS FROM GROSS INCOME	1,729,378	1,785,387	56,009
NET INCOME	2,972,668	2,325,821	646,847

NEW YORK, CHICAGO & ST. LOUIS.—Acquisition and Operation.—The Inter-

state Commerce Commission has authorized this company to acquire a portion and operate all of the approximately 5 miles of track formerly operated by the Elwood, Anderson & Lapelle in Madison County, Ind.

NEW YORK, NEW HAVEN & HARTFORD.—Old Colony Stock.—The Old Colony, which is operated under lease by the New Haven, has petitioned the Massachusetts Department of Public Utilities for authority to issue 9,645 shares of stock which it is proposed to sell at auction, the proceeds to be used to reimburse the New Haven for additions and betterments.

NORFOLK & WESTERN.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control and operate the Big Sandy & Cumberland, through acquisition of its property and the leasehold of the Knox Creek, a subsidiary. The properties include 42 miles of line, largely narrow-gage, and two branches of 14 and 13 miles now under construction, in Pike county, Ky., and Buchanan county, Va.

PERE MARQUETTE.—Annual Report.—The annual report of this company for 1928 shows net income after interest and other charges of \$8,466,971, equivalent after estimating dividend requirements on 5 per cent prior preferred and 5 per cent preferred stock to \$16.17 a share on outstanding common stock. This compares with net income of \$7,176,924, or \$13.31 a share in 1927. Selected items from the income statement follow:

PERE MARQUETTE			
	1928	1927	Increase or Decrease
Average mileage operated	2,244.51	2,244.09	.42
RAILWAY OPERATING REVENUES	45,761,568	44,744,593	1,016,975
Maintenance of way	4,911,908	4,921,516	9,608
Maintenance of Equipment	9,127,770	9,515,272	387,502
Transportation	14,918,086	15,105,884	187,798
TOTAL OPERATING EXPENSES	31,036,347	31,639,864	603,516
Operating ratio	67.82	70.71	2.89
NET REVENUE FROM OPERATIONS	14,725,221	13,104,729	1,620,492
Railway tax accruals	2,725,029	2,491,074	233,955
Equipment rents	686,098	711,860	25,762
Joint facility rents	712,157	602,425	109,732
NET RAILWAY OPERATING INCOME	10,596,357	9,291,668	1,304,689
Other income—Net	468,979	449,402	19,577
GROSS INCOME	11,065,337	9,741,070	1,324,267
Interest Accruals	2,598,365	2,564,145	34,220
NET INCOME	8,466,971	7,176,924	1,290,047

PORT ISABEL & RIO GRANDE VALLEY.—Operation Authorized.—The Interstate Commerce Commission has authorized this company to operate its line of railroad extending from Brownsville, Tex.,

(Continued on page 1236)

Annual Reports

The New York Central Railroad Company

To the Stockholders of

THE NEW YORK CENTRAL RAILROAD COMPANY:

The Board of Directors herewith submits its report for the year ended December 31, 1928, with statements showing the income account and the financial condition of the company.

The Year's Business

Business handled in 1928 compared favorably with that in 1927. Traffic during the first six months was substantially less than during the same period the previous year, but a sharp recovery occurred during the last six months, which was a reversal, generally, of the trend in 1927.

While the number of tons of revenue freight carried showed a decrease as compared with 1927, there was a slight increase in the revenues derived therefrom. Passenger revenues again showed a decrease from the preceding year although the number of passengers carried was greater, due to the increase in commutation passengers, indicating the continued growth of the suburban territory surrounding New York City served by the company's lines. Although there was a small decrease in operating revenues, total operating income for the year was slightly greater than in 1927. The net income for the year, however, decreased more than \$8,000,000 as compared with 1927. This decrease is attributable to the reduced receipts representing dividends upon the company's stock holdings.

The principal factor in the lessened dividend income was the receipt in 1927 of an extra dividend of more than \$9,000,000 upon the company's holdings of stock of The Michigan Central Railroad Company, while no extra dividend was paid by that company in 1928.

The capital structure of the company was further improved during the year by the issue of an additional \$41,975,900 of stock and the retirement of \$50,000,000 of funded debt. This makes the ratio of capital stock to total capitalization 42.74 per cent as compared with 38.34 per cent at the end of 1927.

The company continued during the year its large expenditures on improvements to roadway and structures and in purchase of equipment in order that its business might be handled more efficiently and economically and its passengers accommodated with greater comfort. A detail of some of the more important projects is given later in this report.

Income Account for the Year

	Year ended Dec. 31, 1928	Year ended Dec. 31, 1927	+ Increase — Decrease
INCLUDING BOSTON AND ALBANY RAILROAD AND THE OHIO CENTRAL LINES			
OPERATING INCOME	6,911.27 miles operated	6,906.21 miles operated	+ 5.06 miles
RAILWAY OPERATIONS			
Railway operating revenues	\$381,733,244.32	\$383,377,311.19	—\$1,644,066.87
Railway operating expenses	288,250,203.20	293,399,836.25	—5,149,633.05
NET REVENUE FROM RAILWAY OPERATIONS	\$93,483,041.12	\$89,977,474.94	+\$3,505,566.18
Percentage of expenses to revenues	(75.51)	(76.53)	(—1.02)
Railway tax accruals	\$29,136,903.40	\$25,193,779.94	+\$3,943,123.46
Uncollectible railway revenues	130,543.88	106,116.97	+24,426.91
RAILWAY OPERATING INCOME	\$64,215,593.84	\$64,677,578.03	—\$461,984.19
Equipment rents, net debit	\$5,082,960.30	\$5,831,379.94	—\$748,419.64
Joint facility rents, net credit	3,089,488.42	2,977,628.96	+111,859.46
NET RAILWAY OPERATING INCOME	\$62,222,121.96	\$61,823,827.05	+\$398,294.91
MISCELLANEOUS OPERATIONS			
Revenues	\$806,434.21	\$844,401.48	—\$37,967.27
Expenses and taxes	771,857.88	799,356.42	—27,498.54
MISCELLANEOUS OPERATING INCOME	\$34,576.33	\$45,045.06	—\$10,468.73
TOTAL OPERATING INCOME	\$62,256,698.29	\$61,868,872.11	+\$387,826.18
NON-OPERATING INCOME			
Income from lease of road	\$121,460.21	\$118,545.02	+\$2,915.19
Miscellaneous rent income	4,678,141.05	3,913,012.56	+765,128.49

	Year ended Dec. 31, 1928	Year ended Dec. 31, 1927	+ Increase — Decrease
Miscellaneous non-operating physical property.	1,670,448.10	218,305.67	+1,452,142.43
Separately operated properties—profit	625,521.14	1,046,006.81	—420,485.67
Dividend income	19,604,392.20	31,260,564.75	—11,656,172.55
Income from funded securities and accounts	3,251,582.82	3,230,591.21	+20,991.61
Income from unfunded securities and accounts	4,330,899.54	2,551,845.74	+1,779,053.80
Income from sinking and other reserve funds	187,673.12	168,311.39	+19,361.73
Miscellaneous income	124,622.45	101,495.85	+23,126.60
TOTAL NON-OPERATING INCOME	\$34,594,740.63	\$42,608,679.00	—\$8,013,938.37
GROSS INCOME	\$96,851,438.92	\$104,477,551.11	—\$7,626,112.19
DEDUCTIONS FROM GROSS INCOME			
Rent for leased roads	\$14,117,576.90	\$14,360,838.39	—\$243,261.49
Miscellaneous rents	1,381,959.89	893,639.29	+488,320.60
Miscellaneous tax accruals	1,738,966.97	266,405.56	+1,472,561.41
Separately operated properties—loss	52,899.70		+52,899.70
Interest on funded debt	27,744,694.35	29,292,539.92	—1,547,845.57
Interest on unfunded debt	752,012.48	334,765.77	+417,246.71
Amortization of discount on funded debt	456,381.85	501,155.70	—44,773.85
Maintenance of investment organization	3,777.75	5,266.60	—1,488.85
Miscellaneous income charges	268,683.93	257,794.58	+10,889.35
TOTAL DEDUCTIONS FROM GROSS INCOME	\$46,516,953.82	\$45,912,405.81	+\$604,548.01
NET INCOME	\$50,334,485.10	\$58,565,145.30	—\$8,230,660.20
DISPOSITION OF NET INCOME			
Dividends declared (8 per cent in 1928; 7 3/4 per cent in 1927)	\$34,854,879.30	\$30,462,783.11	+\$4,392,096.19
Sinking and other reserve funds	175,851.37	159,054.11	+16,797.26
Investment in physical property		650.00	—650.00
TOTAL APPROPRIATIONS OF INCOME	\$35,030,730.67	\$30,622,487.22	+\$4,408,243.45
SURPLUS FOR THE YEAR CARRIED TO PROFIT AND LOSS	\$15,303,754.43	\$27,942,658.08	—\$12,638,903.65

Profit and Loss Account

BALANCE TO CREDIT OF PROFIT AND LOSS, DECEMBER 31, 1927	\$217,926,914.65
ADDITIONS:	
Surplus for the year 1928	\$15,303,754.43
Profit on property sold (net)	169,349.46
Profit on securities sold (net)	26,953,997.39
Sundry adjustments (net), unrefundable overcharges, and uncollectible accounts	348,580.29
	\$260,702,596.22
DEDUCTIONS:	
Surplus appropriated for investment in physical property	\$230,763.37
Depreciation prior to July 1, 1907, on equipment retired during year	534,400.39
Loss on property retired	812,020.17
Cancellation of indebtedness of Raquette Lake Railway Company account deficit from operation prior to January 1, 1928	326,795.71
	1,903,979.64
BALANCE TO CREDIT OF PROFIT AND LOSS, DECEMBER 31, 1928	\$258,798,616.58

Revenues, Tonnage and Passengers

Freight revenue was \$234,617,642.06, an increase of \$236,533.11, while revenue freight tonnage was 111,480,773 tons, a decrease of 236,235 tons. A new and greatly enlarged classification of commodities ordered by the Interstate Commerce Commission and effective January 1, 1928, makes comparison in detail with 1927 difficult except as to some of the larger items. Tonnage of bituminous coal decreased substantially and this and rate adjustments were reflected in decreased earnings therefrom. On the other hand, tonnage and earnings of anthracite coal increased materially, largely due to adjustments in rate arrangements. Iron ore movement fell off, partly on account of decrease in related industrial production. A large and increased tonnage of automobiles and parts is attributable to a year of record production in that industry.

[ADVERTISEMENT]

Passenger revenue was \$96,917,043.14, a decrease of \$2,188,270.53, the number of revenue passengers carried being 71,338,842, an increase of 243,134. Interline passengers decreased 147,805 and local passengers 1,182,629, reflecting the continued effect of bus and private automobile competition. Commutation passengers, however, increased 1,573,568, principally in the New York suburban territory.

Mail revenue was \$8,811,895.36, an increase of \$687,052.17, mainly due to the increase in rates.

Express revenue was \$12,874,709.23, an increase of \$159,464.98. Milk revenue was \$6,568,615.05, a decrease of \$25,468.00.

Switching revenue was \$4,532,616.10, a decrease of \$48,959.62. Other transportation and joint facility revenues were \$17,410,723.38, a decrease of \$464,418.98.

Operating Expenses

Operating expenses were as follows:

Group	Amount	Increase	Decrease
Maintenance of way and structures	\$50,974,509.60		\$3,302,561.33
Maintenance of equipment	81,947,793.73	\$2,333,513.77	
Traffic expenses	5,426,534.18	275,610.56	
Transportation expenses	133,231,379.09		1,384,067.03
Miscellaneous operations	6,306,741.07	492,078.27	
General expenses	10,708,856.57		3,484,196.80
Transportation for investment—credit	345,611.04		80,010.49
Total	\$288,250,203.20		\$5,149,633.05

The decrease in expense for maintenance of way and structures is largely attributable to a decrease in the average cost of ties and in the rail-laying program and to a reduction in forces. There were also smaller charges for retirements of facilities and the year 1927 included expenses incident to flood damage on the Boston & Albany Railroad.

The increase in expense for maintenance of equipment was principally due to larger expenditures for rebuilding passenger cars in 1928 and for heavy repairs to freight cars. Fewer locomotives received heavy repairs than in the previous year.

The increase in traffic expenses is due principally to the development of the company's representation in outside territory.

Transportation expenses decreased \$1,384,067.03. The decrease in charges for fuel for train and yard locomotives was \$1,435,326.58, attributable largely to lower prices for coal. Reduction in price and conservation of fuel oil used in the operation of marine equipment resulted in a decreased outlay of approximately \$250,000. Another decrease came from the inclusion in the previous year's expenses of charges for detouring trains of the Boston & Albany as a result of the November, 1927, flood. There were increases in the charges for wages of train and enginemen, the result of a full year's payment in 1928 of increases effective for only a part of 1927, and in the account "Other expenses" in connection with the greater volume of freight handled by motor truck service.

Expenses of miscellaneous operations increased, principally in the dining service, more business having been handled.

General expenses decreased \$3,484,196.80. Commencing with 1925 the company has each year charged to expenses and set up in a reserve an amount to provide for estimated total payments upon pensions granted in that year. Pursuant to recently issued instructions of the Interstate Commerce Commission, however, this practice has been discontinued and the pension expenses for the year 1928 include only the actual payments for pensions applicable to that year and prior to 1925, no charges for a reserve having been made. This has produced a decrease of \$3,076,000 in pension charges as compared with 1927. Valuation expenses decreased \$159,000, following a reduction in forces engaged on this work.

Railway Tax Accruals

Railway tax accruals were \$29,136,903.40, an increase of \$3,943,123.46. Federal income taxes on net profits of \$26,953,000 on sale of securities in 1928 account for \$3,077,000 of this increase, the balance being mainly in taxes on real estate in the Grand Central Terminal area and elsewhere.

Equipment Rents

The net debit to equipment rents was \$5,082,960.30, a decrease of \$748,419.64. The factors contributing were as follows: a decrease in the net debit for freight cars of \$922,757.50, largely the result of decreased payments to other roads reflecting successful efforts in speeding up the return of foreign cars, and a decrease in net charges for floating equipment rentals of \$20,707.56. Partly offsetting are a decrease in net credits for locomotive rentals of \$111,472.99; an increase in net payments for passenger train car rentals of \$78,394.08; and a decrease in net credit for rental of work equipment of \$5,178.35.

Joint Facility Rents

There was a net credit to joint facility rents of \$3,089,488.42, an increase of \$111,859.46. This reflects an increase of \$22,966.30 in the amount received for facilities maintained by this company and a decrease of \$88,893.16 in the amount paid for use of facilities maintained by other companies.

Miscellaneous Operations

This account includes only the operation of the company's livestock yards at Buffalo, the gross income of which for 1928 was \$806,434.21, a decrease of \$37,967.27, while net income was \$34,576.33, a decrease of \$10,468.73.

Non-operating Income

Miscellaneous rent income increased \$765,128.49, partly through acquisition of new properties, notably on the west side of New York City, and through increased rental from properties already under lease, together with increased income incident to the adjustment of rentals, referred to in the report for 1927, between the company and the New York State Realty and Terminal Company (the capital stock of which is entirely owned by the company), affecting properties in the Grand Central Terminal area.

The increase of \$1,452,142.43 in income from miscellaneous physical property is also largely attributable to the adjustment involving properties in the Grand Central Terminal area.

The decrease of \$420,485.67 in profit from separately operated properties is due to smaller receipts from operation of the Pittsburgh McKeesport and Youghiogheny Railroad.

Dividend income decreased \$11,656,172.55, mainly the result of the inclusion in 1927 of extra dividends on the company's holdings of stock of The Michigan Central Railroad Company, The Pittsburgh and Lake Erie Railroad Company, and the Reading Company and the reduced dividend income from stock of the American Express Company, American Railway Express Company, and Mohawk Valley Company sold during the year.

There was an increase of \$1,779,053.80 in income from unfunded securities and accounts. A large part of this increase is due to the adjustment of accounts, heretofore referred to, as to properties in the Grand Central Terminal area. Other items are larger interest receipts from the State of New York and municipalities in connection with the financing of grade crossing elimination and interest received at final settlement with the purchaser of the company's holdings of stock of the Mohawk Valley Company, being interest on the deferred installment of the purchase price.

Deductions from Gross Income

Rent for leased roads decreased \$243,261.49. There were reduced payments to The Mahoning Coal Railroad Company and the Providence Webster and Springfield Railroad Company by reason of falling off in gross earnings and smaller interest payments for account of The Toledo and Ohio Central Railway Company and The Kanawha & Michigan Railroad Company due to reduction in amount of equipment trust obligations outstanding.

Miscellaneous rents increased \$488,320.60, largely in connection with payments to the City of New York for ferry franchise and privilege and rentals for piers and land under water.

The increase of \$1,472,561.41 in miscellaneous tax accruals is chiefly the result of the adjustment referred to above as contributing to the increase in income from miscellaneous physical property and that adjustment is also largely responsible for the increase of \$417,246.71 in interest on unfunded debt.

The principal causes for the decrease of \$1,547,845.57 in interest on funded debt are maturity and retirement on September 1, 1928, of \$50,000,000 Lake Shore and Michigan Southern Railway Company twenty-five year 4 per cent gold bonds of 1903, maturity and retirement on October 1, 1927, of \$1,185,000 First Mortgage 5 per cent bonds of New York and Northern Railroad Company, reduction in amount of equipment obligations outstanding, and the inclusion in 1927 of interest on temporary loan from the Michigan Central Railroad Company liquidated in that year.

Net Income Before Dividends and Other Appropriations

The net income of the company was \$50,334,485.10, a decrease of \$8,230,660.20, and amounted to 10.86 per cent upon the capital stock outstanding at the end of the year.

Dividends

No. 54, 2 per cent on 4,213,008.95 shares, declared March 14, 1928, payable May 1, 1928.....	\$8,426,017.90
No. 55, 2 per cent on 4,215,798.95 shares, declared June 13, 1928, payable August 1, 1928.....	8,431,597.90
No. 56, 2 per cent on 4,619,288.95 shares, declared September 12, 1928, payable November 1, 1928.....	8,726,145.60
No. 57, 2 per cent on 4,635,558.95 shares, declared December 12, 1928, payable February 1, 1929.....	9,271,117.90
Total for year, 8 per cent.....	\$34,854,879.30

Dividends were not paid on unconverted scrip, equalling 33.4 shares for three quarters and 32.4 shares for the final quarter, nor on 5/100ths

of a share held by the company. With respect to dividend No. 56, the amount which would have been payable on the outstanding shares at 2% was reduced by crediting thereon, as an adjustment, the aggregate amount in excess of par, at the rate of \$1.27 per share, paid by subscribers to additional stock who elected to make payment of their subscriptions on the single payment plan.

Surplus

After charges for dividends aggregating \$34,854,879.30 and other appropriations amounting to \$175,851.37, there remained a surplus for the year of \$15,303,754.43 which was carried to the credit of profit and loss. At the end of the year the total corporate surplus was \$261,796,939.61, which includes profit on securities sold.

Property Investment Accounts

Changes in the property investment accounts for the year, shown in detail elsewhere in this report, were:

Road increased	\$27,230,727.82
Equipment increased	4,540,134.25
Miscellaneous physical property increased	8,624,459.49
Improvements on leased railway property decreased	2,552,023.30

a net increase of

\$37,843,298.26

Sales of Securities During the Year

The company sold to the Rochester Central Power Corporation its holdings of the capital stock of the Mohawk Valley Company, amounting to 511,430 shares, at \$75 per share, and to E. L. Phillips its holdings of the capital stock of the New York State Railways, consisting of 136,043 shares of common stock, at \$25 per share. The total consideration received from the sale of these stocks was \$41,758,325. The cost of acquiring them, incurred in the years 1905-1910, was \$16,447,408.30.

The company sold 3,000 shares of stock of the American Railway Express Company for \$389,130. This stock was carried upon the books of the company at par, \$300,000.

The company sold 15,900 shares of stock of the American Express Company at \$225 per share, receiving \$3,577,500. The amount at which this stock appeared on the books of the company plus the cost of transfer tax stamps was \$1,997,067.64.

The federal tax of over \$3,000,000 on the profits from these transactions was charged against 1928 income, while the profits were credited directly to the company's surplus through profit and loss account.

Issue of Additional Capital Stock

Stockholders of record at the close of business on June 15, 1928, were offered the right to subscribe on or before August 29, 1928, for additional stock of the company to the extent of ten per cent of their holdings. This stock was offered at par, payable in two installments of \$50 per share each, due August 29 and December 14, 1928, respectively, with an option to subscribers to make a single payment on or before August 29, 1928, of \$101.27 per share; stock subscribed for under the two payment plan being entitled to dividends payable on and after February 1, 1929, and stock subscribed for on the single payment plan being entitled to dividends payable on and after August 29, 1928. Upon subscriptions under this offer \$41,975,900 of stock was issued during the year, making the total stock outstanding on December 31, 1928, \$463,559,135.

Changes in Funded Debt

The changes in the funded debt of the company, in detail, were as follows:

The amount on December 31, 1927 \$684,629,138.64
has been reduced as follows:

Lake Shore & Michigan Southern Ry. Co. 25 year gold bonds of 1903, due September 1, 1928	\$50,000,000.00
Payments falling due during the year and on January 1, 1929, on the company's liability for principal installments under equipment trust agreements as follows:	
N. Y. C. R. R. Co. Trust of 1917, January 1, 1929	1,117,000.00
Trust No. 43 of January 15, 1920, January 15, 1928	922,700.00
N. Y. C. R. R. Co. Trust of 1920, April 15, 1928	1,153,167.33
N. Y. C. Lines Trust of 1922, June 1, 1928	572,000.00
N. Y. C. Lines 4½ per cent Trust of 1922, September 1, 1928	569,000.00
N. Y. C. Lines Trust of June 1, 1923, June 1, 1928	462,000.00
N. Y. C. Lines Trust of 1924, June 1, 1928	983,000.00
N. Y. C. Lines 4½ per cent Trust of 1924, September 15, 1928	848,000.00
N. Y. C. Lines Trust of 1925, May 15, 1928	734,000.00

leaving the funded debt on December 31, 1928 \$627,268,271.31
a decrease of \$57,360,867.33.

Proposed Leases of Lines of Controlled Companies

The proceedings before the Interstate Commerce Commission in which the company is seeking the authority of the Commission for the leasing of the Michigan Central Railroad, the Cleveland Cincinnati Chicago and St. Louis Railway, and other lines, referred to in the annual reports for 1926 and 1927, are still pending. Additional evidence was introduced at hearings held January 9-16, 1928.

Automatic Train Control

During the year, in addition to the installations of automatic train control on the New York Central Railroad and Boston & Albany Railroad which have been previously reported to the stockholders, the main line of the New York Central between Elkhart, Indiana, and Englewood, Illinois, and between Croton, New York, and Poughkeepsie, New York, has been equipped, thus giving protection to all trains while operating in the steam road territory over the main line between New York and Chicago. The Rochester Division of the New York Central Railroad has been equipped between Rochester, New York, and Suspension Bridge, New York, and the Toledo Division has been equipped between Toledo, Ohio, and Detroit, Michigan. Equipment of the Highland Circuit on the Boston and Albany was well progressed toward completion.

Valuation of the Company's Property by the Interstate Commerce Commission

No decision has yet been made by the Interstate Commerce Commission as to the company's protest in respect to the tentative valuation of its properties.

Container Car Service

The development of container car service continued throughout the year. The company had on December 31, 1928:

98 cars carrying	588 merchandise containers
7 cars carrying	84 lime containers
457 cars carrying	5,484 brick containers
562 Total	6,156

New York Central Building

The thirty-four story tower building located between 46th and 45th Streets on Park Avenue, an illustration of which appears as the frontispiece to this report, will be completed and occupied by May 1, 1929. Certain of the executive offices of the New York Central Lines will be located on the thirty-second, thirty-third and thirty-fourth floors, while the remainder of the building will be rented for commercial purposes. The building contains a total floor area of 817,767 square feet and cost approximately \$12,760,000. By night the tower roof and cupola are illuminated by a system of flood lighting and projector lights, using a total of about 100,000 candle-power.

Rail and Air Service

In order to accommodate the company's passengers desiring a faster service, an arrangement was entered into with the Universal Air Line System by which planes of that company connect at Cleveland with certain New York Central trains and carry passengers to and from Cleveland, Chicago, Minneapolis and St. Louis. This arrangement became effective in September, 1928, and a number of passengers have taken advantage of this service. While this company does not sell through tickets nor act as agent for the airplane company, it does make reservations for passengers upon their request.

Pensions

During the year 474 employees were retired and pensioned; 264 at the age of seventy, 147 for disability, and 63 voluntarily on service pension. There were 3,062 pensioners at the close of the year. The total amount paid in pensions for the year was \$1,781,315.53. The balance in the reserve set up to provide for payments upon pensions granted in 1925, 1926, and 1927, was, at the end of the year, \$6,241,939. The practice of setting up a reserve was discontinued after 1927 as heretofore explained in this report in the comment on operating expenses.

Changes in Organization

Effective May 9, 1928, appropriate changes in the by-laws of the company having been made, the Finance Committee was discontinued and an Executive Committee of seven members was appointed as follows:

Albert H. Harris, Chairman	Harold S. Vanderbilt
George F. Baker	Jackson E. Reynolds
William K. Vanderbilt	Charles B. Seger
Patrick E. Crowley	

The Board records the election on June 13, 1928, of James Simpson to fill the vacancy caused by the death of the Hon. Chauncey M. Depew.

The following appointments were made:

March 1, 1928, Curtis M. Yohe, Assistant to President;
August 1, 1928, Edward Hungerford, Assistant Vice President (Public Relations);

February 1, 1928, Robert N. Brockway, Assistant Treasurer.
The Board wishes to express its appreciation of the loyal and efficient service of the officers and employees of the company during the year.

For the Board of Directors,
P. E. CROWLEY,
President.

Annual Report of the Minneapolis, St. Paul & Sault Ste. Marie Railway Co.

Wisconsin Central Railway Company

For the fiscal year ended December 31, 1928.

To the Stockholders:

Submitted herewith is a report for the fiscal year ended December 31, 1928.

The Gross Earnings, Operating Expenses, Fixed Charges, Surplus, etc., are shown in the following condensed statement:

	Soo Line (Soo District)	Wis. Cent. Ry. (Chicago District)	System 1928	System 1927
Gross Earnings	\$30,661,496.72	\$19,630,156.93	\$50,291,653.65	\$49,157,008.64
Operating Expenses	20,747,432.55	15,659,596.23	36,407,028.78	35,735,613.65
Net Earnings	\$9,914,064.17	\$3,970,560.70	\$13,884,624.87	\$13,421,394.99
Income from Other Sources	\$846,043.53	\$253,391.04	\$1,099,434.57	\$977,477.21
Total Income	\$10,760,107.70	\$4,223,951.74	\$14,984,059.44	\$14,398,872.20
Fixed Charges, Taxes, etc.	7,840,119.28	5,046,253.90	12,886,373.18	12,856,968.54

Addition to Surplus \$2,919,988.42 Dr. \$322,302.16 \$2,097,686.26 \$1,541,903.66

Gross Revenue for the System during 1928 was \$50,291,653.65, an increase of \$1,134,645.01, or 2.31%, compared with the previous year.

Freight Revenue for the System during 1928 was \$41,473,194.71, an increase of \$1,762,460.85, or 4.44%.

There were increases and decreases in freight revenue as follows:

Products of Agriculture	\$1,236,582 Inc.
Products of Forests	602,153 Dec.
Less than Carload Freight	106,658 Dec.
Animals and Products	65,163 Dec.
Products of Mines	289,079 Dec.
Manufactures and Miscellaneous	1,588,932 Inc.

FREIGHT REVENUE \$1,762,461 Inc.

Products of Agriculture increased due to a larger crop than in the previous year. The total number of bushels of grain moved over the Soo District from August 1, 1927 to December 31, 1927, was 36,517,547, while in the same period of 1928 the number of bushels moved was 39,513,725. The total movement of the 1927 crop was 54,138,346 bushels, while the 1928 crop movement is estimated at 61,947,157 bushels, an increase of 7,808,811 bushels.

Products of Forests decreased due to a smaller movement of pulp wood, ties, logs, posts, poles and cordwood.

Less than Carload Freight decreased due to an increased use of automobiles and trucks.

Animals and Products show a slight decrease. There was a reduction in the movement of cattle, which was largely offset by a considerable increase in shipments of hogs, sheep, butter and cheese.

Products of Mines decreased, owing to a smaller movement of stone, sand, gravel, all rail iron ore, coke, bituminous and anthracite coal. The movement of low-rated lignite coal increased. There was an increase in iron ore loading to lake ports but a decrease in revenue on account of a fluctuation in the amount of ore moved from the different ranges.

Manufactures and Miscellaneous show an increase in refined petroleum and its products, agricultural implements, vehicles, automobiles and miscellaneous higher class freight.

Comparison of Cars Loaded on our line and received from connections, and revenue, 1924 to 1928 inclusive, is shown in the statement below:

	(000 Omitted from Revenue)	1924	1925	1926	1927	1928
Products, Agricultural:						
Cars	109,844	105,957	82,558	93,947	100,157	
Revenue	\$10,422	\$9,981	\$6,935	\$8,970	\$10,206	
Products, Animals:						
Cars	34,165	36,088	39,925	36,180	35,432	
Revenue	\$2,423	\$2,619	\$2,907	\$2,659	\$2,594	
Products, Mines:						
Cars	106,854	123,866	133,056	139,092	141,548	
Revenue	\$5,165	\$5,829	\$6,119	\$6,663	\$6,374	
Products, Forests:						
Cars	149,222	152,709	141,990	148,599	132,744	
Revenue	\$6,546	\$6,574	\$6,421	\$6,618	\$6,016	
Miscellaneous:						
Cars	106,471	120,896	123,000	125,253	136,164	
Revenue	\$7,813	\$9,006	\$9,140	\$9,564	\$11,153	
Merchandise:						
Tons	506,038	521,423	502,191	503,582	483,520	
Revenue	\$4,980	\$5,410	\$5,223	\$5,237	\$5,130	
Grand Total:						
Cars	506,556	539,516	520,529	543,071	546,045	
Revenue	\$37,349	\$39,419	\$36,745	\$39,711	\$41,473	

There was an increase of 2,235 cars in business received from connecting lines.

Passenger Revenue was \$4,988,901.23, a decrease of \$614,897.20, or 10.97%. There was an increase of 17,876 train miles, or .38% in passenger train service due to a change during the past year in the operation of the "Mountaineer" which was run as a through train from Chicago, Illinois, to Portal, North Dakota. The increase would have been greater had it not been for the number of passenger trains transferred to mixed service. Long haul business to the Pacific Coast was lighter than during the previous year and the local travel continued to decrease.

Revenue from Milk handled in baggage cars was \$504,457.55, a decrease of \$110,069.36. Of this decrease \$35,002.95 was on the Soo District and \$75,066.41 on the Chicago District. The decrease on the Soo District was due to extended trucking and the establishment of additional creameries in various localities. The decrease on the Chicago District was occasioned by mergers of milk companies in Chicago and extended trucking. In addition to the milk handled in baggage cars, the Chicago District handled milk in tank cars producing freight revenue of \$151,696.37, as compared with \$141,780.00 during the previous year. This increase was caused by the extension of condensaries in Wisconsin.

Maintenance of Way and Structures Expense increased \$420,266.92. While the total number of ties installed did not exceed the previous year, there was an additional charge to expense of \$139,040.00 by reason of a slight increase in the cost of all ties and the increased number of treated ties installed. During the year there were laid 77.6 miles of 100 pound and 36.7 miles of 90 pound rail, as compared with 51.9 miles of 100 pound rail laid in 1927, resulting in an increased charge to expense of \$156,850.00. The rearrangement and enlargement of the yard at Schiller Park, Illinois, caused an additional charge to expense of \$93,915.00. Increased wages in this department granted during the year amounted to \$71,439.57.

Maintenance of Equipment Expense increased \$12,791.18. A heavier program for maintenance of passenger equipment, including repairs by the Pullman Company of six diners, caused an increase of \$223,214.00. Increase in wages in this department granted during the year amounted to \$73,935.50.

Transportation Expense increased \$124,093.96, or .69%. The total freight revenue increased 4.44% and total ton miles of revenue freight increased 3.27%. Total gross ton miles increased 3.86%, which figure includes the weight of cars as well as freight and represents the transportation effort compared with the previous year. Gross tons per train increased 98 tons, or 7.05%. This resulted in handling an increase of 3.86% gross ton miles with a decrease of 2.94% in train miles, partially due to placing in service in July 1928 eight additional mountain-type locomotives. There was a saving effected during the year amounting to \$117,772.26 on account of the more efficient use of fuel as indicated by the pounds of coal per 1,000 gross ton miles. There was included in Transportation Expense increases in wages amounting to \$465,104.64 granted to employees during the year.

Hire of Equipment. Net charges to Hire of Equipment accounts were \$103,296.77 more than the previous year. Increased oil traffic, necessitating use of privately owned tank cars on which a mileage rental is paid, was responsible for approximately one-half of the increase, the balance being due to the small number of System cars on foreign lines.

Increases in pay in all departments granted at various times resulted in payrolls being increased a total of \$633,902.51.

Funded and Unfunded Debt. The outstanding indebtedness was increased during the year as follows:

Minneapolis, St. Paul & Sault Ste. Marie Railway Company:	
Series "O" Equipment Notes	\$1,260,000.00
Total Increase	\$1,260,000.00

The outstanding indebtedness was decreased during the year as follows:

Minneapolis, St. Paul & Sault Ste. Marie Railway Company:	
Equipment Trust Obligations	\$ 957,000.00
Two Year 4 1/2 % Gold Notes	1,325,000.00
First Refunding Mortgage Series "A"	70,000.00
Equipment Purchase Contracts made in prior years	220,076.66

[ADVERTISEMENT]

Wisconsin Central Railway Company:	
First General Mortgage Bonds.....	5,000.00
Marshfield & Southeastern Division Purchase Money Mortgage Bonds	5,000.00
Total Decrease	\$2,582,076.66
Net Decrease	\$1,322,076.66

The \$1,260,000.00 Series "O" Equipment Notes were assumed in the acquisition of 8 Locomotives, 8 Baggage-Smoking Cars, and 400 Box Cars.

Additions and Betterments. During the year there was expended for Additions and Betterments to Road a net amount of \$1,960,622.17. Expenditures for Additions and Betterments to Equipment, including Series "O" Equipment costing \$1,728,228, was \$1,963,781.11. Retirements, including 23 locomotives, amounted to \$963,898.25, producing a net increase in the Equipment Investment of \$999,882.86.

Valuation. On July 13, 1928, the Interstate Commerce Commission made its final valuations for rate making purposes of property owned and used for transportation purposes, as follows: Minneapolis, St. Paul & Sault Ste. Marie Railway Company, as of June 30, 1916, \$104,910,000.00, exceeding the previous tentative valuation by \$236,000.00; Wisconsin Central Railway Company, as of June 30, 1917, \$46,600,000.00, exceeding the tentative valuation by \$1,604,200.00; Central Terminal Railway Company, as of June 30, 1917, \$5,290,000.00, exceeding the tentative valuation by \$40,000.00.

The net increase in Investment in Road and Equipment for Minneapolis, St. Paul & Sault Ste. Marie Railway Company, from June 30, 1916, to December 31, 1928 was \$20,992,197.15;

for Wisconsin Central Railway Company, from June 30, 1917, to December 31, 1928, \$15,227,648.25; Central Terminal Railway Company, from June 30, 1917, to December 31, 1928, had a net decrease of \$5,975.72.

The total cost to the above three companies of work done on such valuations to December 31, 1928, aggregated \$475,936.24.

General. Our results for 1928 were the most satisfactory for a number of years, both as to gross and as to net. Fair crops were harvested in Minnesota, North Dakota, South Dakota and Montana in 1928; prices of farm products, outside of wheat, were good; and business conditions throughout these states continued to improve. The diversification program which has been carried on so intensively during the past five years is bringing about the best of results. Our farming communities are gradually working away from their dependence on small grain, thus bringing about much more stable business in our territory; bank failures are becoming fewer; and farm values are gradually improving in many sections.

The competition from busses and trucks is becoming keener, and this situation together with a constant demand for increased wages necessitates our using every effort and expending all money available to bring about the most economical operation of our property. A good deal has been accomplished along this line during the last few years, as our operating results will show.

Various statements covering the operation of the property during the period January 1, 1928, to December 31, 1928, will be found on the following pages.

Respectfully submitted,
C. T. JAFFRAY,
President.

GENERAL BALANCE SHEET DECEMBER 31, 1928

ASSETS		LIABILITIES	
Property Investment:		Capital Stock:	
Road	\$106,995,069.13	Common	\$ 25,206,800.00
Equipment	30,950,763.21	Preferred	12,603,400.00
	<u>\$137,945,832.34</u>	Total	\$ 37,810,200.00
Less Reserve for Equipment		Governmental Grants:	
Depreciation	11,612,803.63	Grants in Aid of Construction.....	3,224.89
Total	\$126,333,028.71	Funded Debt Unmatured	96,310,200.00
Sinking Funds	6,463.08	M. St. P. & S. S. M. Ry. Co. 4% Leased	
Miscellaneous Physical Property	3,058,098.00	Line Certificates	11,249,500.00
Wis. Cent. Ry. Co., Preferred Stock.....	11,249,500.00	(Issued in exchange for Preferred Stock	
(Pledged for M. St. P. & S. S. M. Ry.		of Wisconsin Central Ry. Co., held by	
Co., 4% Leased Line Certificates)		Trustee.)	
Investments in Proprietary, Affiliated, and		Non-negotiable Debt to Affiliated Companies	
Controlled Companies:		Current Liabilities:	
Stocks	\$ 12,381,184.47	Traffic and Car Service Balances.....	\$ 548,562.78
W. C. Ry. Co. Equipment Contracts.....	3,201,920.21	Audited Vouchers and Wages Payable..	2,442,792.17
W. C. Ry. Co. Advances.....	3,068,683.55	Miscellaneous Accounts Payable.....	123,959.60
Other Advances	2,947,704.73	Interest Matured Unpaid.....	1,664,400.26
Total	21,599,492.96	Dividends Matured Unpaid.....	63.00
Other Investments:		Funded Debt Matured Unpaid.....	2,000.00
Stocks	\$ 1.00	Unmatured Interest Accrued.....	465,203.42
Bonds	1,972,200.00	Unmatured Rents Accrued.....	6,816.13
Notes	1,381,389.56	Other Current Liabilities.....	156,979.06
Advances	17,546.94	Total	\$ 4,410,776.42
Total	3,371,137.50	Deferred Liabilities	783,546.64
Current Assets:		Unadjusted Credits:	
Cash	\$ 56,619.26	Tax Liability	\$ 1,822,139.96
Time Drafts and Deposits.....	1,260,000.00	Premium on Funded Debt.....	1,243.34
Special Deposits	1,660,219.26	Insurance and Casualty Reserves.....	145,461.77
Loans and Bills Receivable.....	75.75	Other Unadjusted Credits.....	1,585,719.49
Traffic and Car Service Balances.....	513,358.92	Total	3,554,564.56
Agents and Conductors Balances.....	677,136.71	Corporate Surplus:	
Miscellaneous Accounts Receivable.....	839,252.25	Additions to Property thru Income and	
Material and Supplies	4,430,107.35	Surplus	\$ 242,013.76
Interest and Dividends Receivable.....	163,147.96	Funded Debt Retired thru Income and	
Other Current Assets	78,969.81	Surplus	169,000.00
Total	9,678,887.27	Sinking Fund Reserves.....	6,463.08
Deferred Assets:		Profit and Loss—Credit Balance.....	20,333,233.63
Working Fund Advances	\$ 49,276.21	Total	20,750,710.47
Other Deferred Assets	267,053.90	Grand Total	
Total	316,330.11	\$177,167,722.98	
Unadjusted Debits:			
Rents and Insurance Paid in Advance..	\$ 27,257.57		
Discount on Funded Debt.....	505,941.76		
Other Unadjusted Debits.....	1,021,586.02		
Total	1,554,785.35		
Grand Total	\$177,167,722.98		

[ADVERTISEMENT]

Financial News

(Continued from page 1231)

northeastern to Point Isabel, 26.4 miles. The line is owned by the Port Isabel

Company, which owns and is developing and colonizing large areas of land in the vicinity.

ST. LOUIS SOUTHWESTERN.—Stock Acquired.—New York Investors, Inc., New

York and Chicago, has applied to the Missouri Public Service Commission for permission to acquire and hold more than 10 per cent of the capital stock of this company. Under Missouri laws foreign

corporations cannot hold more than 10 per cent of the stock of Missouri common carriers without the consent of the state commission.

St. Louis Southwestern.—*Annual Report.*—The annual report of this company for 1928 shows net income after interest and other charges of \$1,759,362, as compared with net income of \$1,847,814 in 1927. Selected items from the income statement follow:

St. Louis Southwestern		Increase or Decrease	
	1928	1927	
Average mileage operated	1,747.78	1,747.81	— .03
Railway Operating Revenues	25,575,765	24,206,525	1,369,240
Maintenance of way	4,642,108	4,641,477	631
Maintenance of Equipment	4,306,649	3,938,912	367,737
Transportation	7,856,553	7,442,189	414,364
TOTAL OPERATING EXPENSES	19,330,633	18,494,571	836,062
Operating ratio	75.58	76.40	— .82
NET REVENUE FROM OPERATIONS	6,245,132	5,711,954	533,178
Railway tax accruals	1,072,840	955,063	117,777
Railway operating income	5,002,320	4,521,766	480,554
Hire of Freight cars	577,037	9,989	567,048
Joint facility rents	327,529	335,485	— 7,956
NET RAILWAY OPERATING INCOME	4,093,463	4,164,372	— 70,909
Non-operating income	319,845	555,750	— 235,906
GROSS INCOME	4,413,308	4,720,122	— 306,815
Interest on funded debt	2,608,655	2,631,502	— 22,847
TOTAL DEDUCTIONS FROM GROSS INCOME	2,653,946	2,872,308	— 218,363
NET INCOME	1,759,362	1,847,814	— 88,452

Trinity Valley & Northern.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that portion of its line between Fullerton, Tex., and Lumm, 12.2 miles.

Warash.—*New Directors.*—E. C. Mann, vice-president, secretary and treasurer of this company and Melvin W. Ellis, president of the Oliver Farm Equipment Company, Chicago, were elected directors at the annual meeting at Fort Wayne, Ind., on May 20 to succeed J. Horace Harding and William A. Jamison of New York.

Western Pacific.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of \$1,095,000 of equipment trust certificates, series D, to mature serially from November, 1929, to 1943, bearing interest at 5 per cent. The issue will be sold to Halsey, Stuart & Co., at 97.25, making the cost to the railroad 5.46 per cent.

Dividends Declared

Chicago, Burlington & Quincy.—\$5.00, semi-annually, payable June 25 to holders of record June 18.
Cincinnati, New Orleans & Texas Pacific.—Common, \$4.00, semi-annually, payable June 24 to holders of record June 7.
Colorado & Southern.—First Preferred, 2 per cent, payable July 1 to holders of record June 18.

Consolidated Railroads of Cuba.—Preferred, 1½ per cent, quarterly, payable July 1 to holders of record June 10a.

Cuba Railroad.—Common, \$1.20, payable June 28 to holders of record June 28a; Preferred, 3 per cent, payable August 1 to holders of record July 15a; Preferred, 3 per cent, payable February 1, 1930, to holders of record January 15a.

Delaware & Bound Brook.—2 per cent, quarterly, payable May 20 to holders of record May 15.

Kansas, Oklahoma & Gulf.—Preferred A, 9 per cent, payable June 1 to holders of record May 20.

Midland Valley.—Preferred, \$1.25, payable June 1 to holders of record May 24.

Missouri-Kansas-Texas.—Preferred A, 1¾ per cent, quarterly, payable June 29 to holders of record June 15.

Philadelphia, Germantown & Norristown.—\$1.50, quarterly, payable June 4 to holders of record May 21 to June 3.

Average Prices of Stocks and of Bonds

	May 21	Last week	Last year
Average price of 20 representative railway stocks	133.06	129.73	123.21
Average price of 20 representative railway bonds	90.78	91.15	95.71

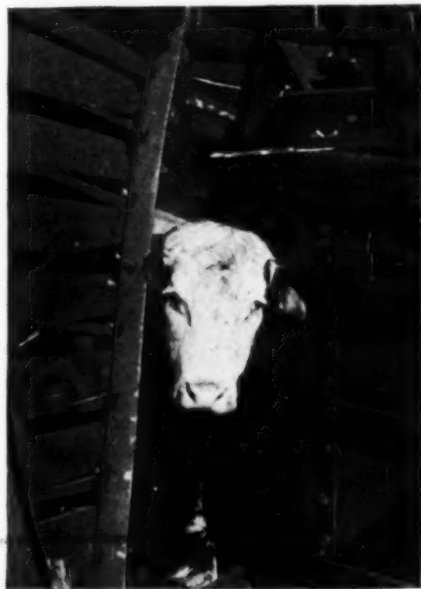
Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common carrier purposes as of the respective valuation dates as follows:

Akron, Canton & Youngstown	\$1,731,354	1918
El Dorado & Wesson	124,835	1918

THE NEW YORK CENTRAL recently demonstrated a new method for the terminal handling of merchandise shipments in containers. The plan contemplates the use of a drop-side gondola car for the rail movement of the containers and the use of an electric lift truck to remove the containers from this car and transfer them to automobile trucks. The test indicated that five containers would carry the entire contents of a regular 60-ft. baggage car. The container car, which was built by the L.C.L. Corporation, is equipped to handle six containers.

* * *



P. & A. Photo

A Recent Derailment

One of the uninjured and unexcited passengers. (On the way to the slaughter house, nevertheless)

Officers

Executive

Albion M. Fenton, general freight agent of the Chicago, St. Paul, Minneapolis & Omaha, has been elected vice-president in charge of traffic with headquarters as before at St. Paul, Minn., succeeding **Alex C. Johnson**, who retires on June 1 as vice-president of both the Omaha and the Chicago & North Western.

Frank J. Fell, Jr., comptroller of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed vice-president and comptroller. He will continue to discharge the duties of the comptrollership and will be in general charge of all the company's accounting work. **Elmer Hart**, assistant comptroller, with headquarters at Philadelphia, Pa., has been appointed deputy comptroller. Both these appointments become effective June 1.

J. J. Bernet, president of the Erie, has applied to the Interstate Commerce Commission for authority to serve as president and director of the Chesapeake & Ohio, Hocking Valley, Pere Marquette and other roads affiliated with the C. & O., stating he expected to be elected to those positions on May 24 and that he will resign as president of the Erie. **W. J. Harahan**, now president of the C. & O., asked authority to serve as senior vice-president and director of the C. & O., Pere Marquette and other companies. Applicants also asked authority for other officers and directors of the C. & O. to serve as directors of the Pere Marquette. These include **H. H. Fitzpatrick**, vice-president and general counsel, **Otto Miller**, **Frank H. Ginn** and **Alva Bradley**, directors.

Alex. C. Johnson, who retires on June 1, as vice-president in charge of traffic of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Chicago, was born in Crawford county, Pa., in 1861, and received his academic education at Meadville College in Pennsylvania. He entered the service of the North Western in 1894 as a special agent and five years later he was advanced to general agent for South Dakota, where he remained until 1900, when he was transferred to Winona, Minn. Mr. Johnson was then promoted to general freight and passenger agent of the Pierre, Rapid City & Northwestern (now part of the North Western) and in May, 1910, he was again promoted to passenger traffic manager of the North Western, with headquarters at Chicago. In 1916 he was promoted to general traffic manager, a position he held until federal control when he was appointed assistant traffic manager of the North Western and chairman of the Western

Freight Traffic committee. On October 1, 1919, he was appointed traffic manager of the North Western, still retaining the chairmanship of the Western Freight Traffic committee, and when the railroads were returned to private control



Alex C. Johnson

on March 1, 1920, he resumed his former position of general traffic manager. Mr. Johnson was elected vice-president in charge of traffic of the North Western on January 1, 1921, being elected to a similar position on the Omaha in 1924.

Henry W. Beyers, freight traffic manager of the Chicago & North Western, has been elected vice-president in charge of traffic with headquarters at Chicago, effective June 1, succeeding Alex. C. Johnson, who will retire on that date. Mr. Beyers was born at Toledo, O., on March 26, 1870. He has been in the service of that railway for 46 years, beginning in 1883 as a clerk in the office



Henry W. Beyers

of the commercial agent at Chicago. In 1892 he was advanced to general agent at Cleveland, O., and for the following 23 years he served successively in that position, as general agent at Philadelphia, Pa., as general agent at Chicago and as assistant general freight agent at the latter point. On November 10, 1915, Mr. Beyers was promoted to assistant freight traffic manager, with headquarters at Chicago, then being further promoted to assistant traffic manager on August 1, 1918, and to the position of freight traffic manager on March 1, 1920.

A. C. Shields, who has been elected vice-president and general manager of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has been in the service of that railway for nearly six years. He was born in Iowa and after graduating from a course in civil engineering at Iowa State College, entered railway service in 1898 in the engineering department of the Chicago, Rock Island & Pacific. During the following 15 years Mr. Shields served in various positions in the engineering department of the Rock Island and in March, 1913, he was promoted to division engineer at Little Rock, Ark. Three years later he was transferred to Trenton, Mo., where he remained until August, 1923, when he was appointed



A. C. Shields

engineer of maintenance of way of the Rio Grande Western, with headquarters at Denver. In 1925 he was promoted to assistant general manager and on April 1, 1927, he was again promoted to general manager, with headquarters as before at Denver. Mr. Shields' election to vice-president, with the title of vice-president and general manager, became effective on April 4.

Financial, Legal and Accounting

Edward Ross has been appointed auditor of freight and passenger revenues of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., succeeding **J. M. Coddington**, deceased.

F. W. Middleton, assistant claim agent on the Kansas City Southern at Texarkana, Tex., has been appointed claim agent of the Louisiana & Arkansas, with headquarters at Shreveport, La.

Operating

C. M. Trussell, assistant trainmaster on the Baltimore & Ohio at Akron, Ohio, has been promoted to trainmaster of the Chicago division at Garrett, Ind.

Carl F. Fennema has been appointed assistant to the general manager of the

Southern Pacific Golden Gate Ferries, Ltd., with headquarters at San Francisco, Cal.

G. H. Sido, general manager of the Ann Arbor, with headquarters at Toledo, O., has been appointed general manager of the Wabash, with headquarters at St. Louis, Mo. Mr. Sido replaces **S. E. Cotter**, vice-president and general manager, who retains the title of vice-president in charge of operation.

F. A. Clifford, assistant superintendent of stations and claim prevention of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to special assistant to the vice-president and general manager, with headquarters at the same point. **F. C. Tedford** has been appointed assistant superintendent of stations and claim prevention, succeeding Mr. Clifford.

W. J. Whalen has been appointed trainmaster on the LaCrosse division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Portage, Wis. **A. F. Manley**, trainmaster on the Idaho division at St. Maries, Idaho, has been transferred to the trans-Missouri division at Miles City, Mont., and the jurisdiction of **E. E. Johnston**, trainmaster at Spokane, Wash., has been extended to include the entire Idaho division. **W. L. Schmitz**, assistant superintendent on the Iowa division at Perry, Iowa, has been transferred to Council Bluffs, Iowa. **R. C. Dodds**, trainmaster on the Madison division at Madison, Wis., has been promoted to assistant superintendent at Perry.

Traffic

H. E. Redlingshafer, passenger traffic agent for the Chicago Great Western at Dallas, Tex., has been promoted to assistant general passenger agent, with headquarters at Kansas City, Mo.

Edward K. Garrison, commercial agent for the Chicago, Milwaukee, St. Paul & Pacific at San Francisco, Cal., has been promoted to general agent at Atlanta, Ga., effective June 1.

E. F. LeFaivre, traveling freight and passenger agent for the St. Louis-San Francisco at San Francisco, Cal., has been promoted to general agent at Seattle, Wash., a newly created agency. The promotion becomes effective June 1.

Albert W. Whitney, general agent for the Chicago & Eastern Illinois at Minneapolis, Minn., has been transferred to Birmingham, Ala., effective June 1, succeeding **Jasper Triteline**, who has been transferred to Minneapolis.

Herbert L. Browne, assistant general freight and passenger agent of the Missouri-Kansas-Texas of Texas, with headquarters at Houston, Tex., has resigned to accept duties with the Houston Port Bureau at New York.

T. E. Huffman, general agent on the Texas & Pacific at Fort Worth, Tex., has been promoted to general merchandise traffic agent, with headquarters at

Dallas, Tex. **T. E. Little**, general traveling freight agent at Dallas, has been promoted to general agent at Fort Worth, succeeding Mr. Huffman.

Eli W. Long, who has been appointed assistant freight traffic manager of the Seaboard Air Line, with headquarters at Norfolk, Va., was born on September 14, 1884, at Marshall, N. C. He entered railway service in September, 1901 with the Southern, serving in various clerical positions until 1907, when he entered the service of the Carolina & Northwestern. He was appointed commercial agent of the Seaboard Air Line at Greenville, S. C., in 1912, later being promoted to the position of division freight agent. He next served as assistant general freight agent for the same road at Charlotte, N. C., which position he held at the time of his recent promotion to assistant freight traffic manager.

John R. Mills, who has been promoted to assistant freight traffic manager of the Kansas City Southern, with headquarters at Kansas City, Mo., has been connected with the traffic department



John R. Mills

of that railway for 28 years. He was born at Sherman, Tex., on February 20, 1874, and entered railway service at the age of 13 years in the traffic department of the Kansas City, Fort Scott & Memphis (now part of the St. Louis-San Francisco) and after serving in a number of minor positions he was advanced to chief tariff clerk in 1894. In 1901 he was appointed to a similar position on the Kansas City Southern and in 1902 he was advanced to chief clerk in the traffic department. Mr. Mills was promoted to assistant general freight agent, with headquarters at Kansas City, in 1908, his further promotion to assistant freight traffic manager becoming effective on May 1.

Guy B. Wood, who has been promoted to freight traffic manager of the Kansas City Southern, with headquarters at Kansas City, Mo., and with jurisdiction over solicitation, has been connected with that railway for nearly 30 years. He was born at Hot Springs, Ark., on November 3, 1878, and graduated from the University of Arkansas in 1899. In the latter year he entered railway service as a clerk in the traffic department of

the Kansas City Southern, then advancing successively through various positions including those of commercial agent, general agent and assistant general freight agent. In May, 1917, Mr. Wood was promoted to assistant to the



Guy B. Wood

president, with headquarters at Kansas City. He was appointed general freight agent, with headquarters at Kansas City, in 1928, his further promotion to freight traffic manager becoming effective on May 1.

Samuel F. Miller, assistant freight traffic manager of the Chicago & North Western, has been promoted to freight traffic manager, with headquarters as before at Chicago, effective June 1, succeeding **Henry W. Beyers**, who has been elected vice-president. Mr. Miller has been connected with the North Western for nearly 48 years. He was born at Wenona, Ill., and entered railway service on July 21, 1881, as a telegraph



Samuel F. Miller

operator on the North Western. Later he became a cashier and from 1884 to 1890 he acted as station agent at a number of points in Wisconsin. He was then advanced to traveling agent and in 1896 he became a general agent, being advanced to his first executive position, that of assistant general freight agent at Chicago, in 1902. Four years later Mr. Miller was promoted to general freight and passenger agent of the Western lines of the North Western,

with headquarters at Omaha, Neb., where he remained until September, 1912 when he became general freight agent, with headquarters at Chicago. He was promoted to assistant freight traffic manager on May 1, 1921.

Purchases and Stores

H. L. Taylor, assistant purchasing agent of the Western region of the Canadian National, with headquarters at Winnipeg, Man., has been promoted to purchasing agent, with headquarters at Vancouver, B. C., succeeding **C. C. Labrie**, who has resigned.

Mechanical

J. M. Pierce, master mechanic on the Kansas City Southern at Shreveport, La., has been transferred to Pittsburg, Kan.

W. L. Gorton, assistant supervisor of fuel and locomotive operation of the Erie, with headquarters at New York, has been appointed district road foreman and fuel supervisor, with headquarters at Secaucus, N. J. **George M. Boh** has been appointed district road foreman and fuel supervisor at Hornell, N. Y., succeeding **James Cunneen**, who has been assigned to other duties.

W. B. Porter, assistant engineer of motive power in the office of the general manager of the Eastern region of the Pennsylvania at Philadelphia, Pa., has been promoted to master mechanic of the Chicago Terminal division, with headquarters at Chicago, succeeding **Adam La Mar**, who has been transferred to the Williamsport division, with headquarters at Williamsport, Pa.

Engineering, Maintenance of Way and Signaling

R. J. Smith, supervisor in the Eastern region of the Pennsylvania, has been promoted to assistant division engineer of the Panhandle division at Pittsburgh, Pa.

D. W. Gross has been appointed chief engineer of the Winston-Salem Southbound, with headquarters at Winston-Salem, N. C., succeeding **J. E. Willoughby**.

Howard E. Boardman has been appointed construction engineer of the Boston & Maine, with headquarters at Boston, Mass., succeeding **Charles L. Griffin**, who has been granted a leave of absence.

H. H. Rights, assistant bridge engineer of the Lehigh Valley, with headquarters at Bethlehem, Pa., has been promoted to the position of bridge engineer, with the same headquarters, succeeding **F. E. Schall**, who has been appointed consulting bridge engineer.

W. H. Vance, assistant engineer of maintenance of way of the Missouri Pacific, has been appointed acting engineer of maintenance of way, with headquarters as before at St. Louis, Mo., temporarily succeeding **A. A. Miller**, who has been granted a leave of absence. **R. M. Smith**, division engineer of the Memphis division, with headquarters at Wynne, Ark., has been promoted to assistant engineer of maintenance of way, with headquarters at St. Louis. **C. J. Jaeschke**, assistant engineer at Pueblo, Colo., has been promoted to division engineer of the Memphis division, succeeding Mr. Smith.

Lem Adams, roadway assistant of the Union Pacific System, has been promoted to general supervisor of maintenance of way, with headquarters as before at Omaha, Neb. Mr. Adams was born at Buda, Tex., on June 6, 1886, and was graduated from a course in civil engineering at Texas A. & M. College with the degree of bachelor of science. He entered the service of the Union Pacific System as a rodman on the Oregon Short Line in June, 1909. In the following year he became a draftsman and from June, 1911, to March, 1916, he served successively as



Lem Adams

an estimator and as chief draftsman. He was then promoted to assistant division engineer, becoming engineering accountant in 1917 and contract engineer in 1918. In August, 1919, Mr. Adams was transferred to the Union Pacific unit of the system with the title of special-field engineer in the maintenance of way department, then being promoted to roadway assistant of the system, with headquarters at Omaha, in April, 1920. His further promotion to general supervisor of maintenance of way became effective on May 15.

Harold B. Barry, who has been promoted to assistant chief engineer of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., has completed 26 years of railway service. He was born at Hilsboro, Ill., on May 19, 1880, and for three years attended the University of Illinois where he took a course in civil engineering. In June, 1903, he entered railway service as an instrumentman on construction of the

El Paso & Southwestern (now part of the Southern Pacific) at Naco, Ariz. From 1904 to 1915, Mr. Barry served successively as a transitman on location



Harold B. Barry

of the Southern Pacific in Arizona and Mexico and as assistant engineer on maintenance on the Frisco, then being promoted to district engineer at Chaffee, Mo. On September 1, 1916, he was transferred to Memphis, Tenn., where he remained until March 1, 1920, when he was promoted to principal assistant engineer of the Frisco, with headquarters at St. Louis, Mo. His further promotion to assistant chief engineer became effective on May 1.

Obituary

Ernest Williams, chairman of the board of the Norfolk & Southern, with headquarters at Lynchburg, Va., died on May 20 at his home in that city.

James H. Hiland, formerly vice-president in charge of traffic of the Chicago, Milwaukee, St. Paul & Pacific, who retired in 1917, died at his home in Chicago on May 20, at the age of 80 years.

William M. Bacon, who served as superintendent of the Colorado & Southern at Denver, Colo., and of the Denver & Rio Grande at Salt Lake City, Utah, from 1903 to 1912, died at Denver on May 12 at the age of 70 years.

T. W. Coe, superintendent of motive power of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio, died in St. John's Hospital in that city on May 18, following an operation for appendicitis.

Jotham M. Coddington, auditor of freight and passenger revenues of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., died on May 11. Mr. Coddington entered the service of the D. L. & W. in 1889 and had been auditor of freight and passenger revenues since 1920.

J. W. Morrow, tax and right of way agent of the Oregon-Washington Railroad & Navigation Company, died at Portland, Ore., on May 16 from injuries sustained in a fall at his home. Mr. Morrow was 70 years of age and entered the service of the Oregon-Washington

as general tax agent in 1903. He had served as county clerk of Morrow County, Ore., and as a State Senator.

W. E. Berner, former division superintendent on the Northern Pacific at Jamestown, N. D., who retired from active duty in 1926, died in that city on May 15. Mr. Berner served from 1907 to 1914 as trainmaster at Fargo, N. D., at Dilworth, Minn., and at Livingston, Mont. On the latter date he was promoted to division superintendent, with headquarters at Jamestown, where he remained until his retirement in 1926.

J. J. Hack, engineer of train lighting, heating and ventilation of the Southern Pacific, with headquarters at West Oakland, Cal., died on April 4 at Klamath Falls, Ore., following a heart attack. Mr. Hack, who was 59 years of age, was a native of California and had been in the service of the Southern Pacific for 40 years. He was appointed engineer of train lighting, heating and ventilation on January 1, 1913.

Edmund M. Fairfield, assistant to the executive vice-president of the Chicago, Burlington & Quincy, who died at Chicago on May 4, was born in 1867. He spent his early years in Lincoln, Neb., and soon after graduating from Oberlin College entered the service of the Burlington at Omaha. In 1900 he was appointed general manager for the receiver of the Omaha (Neb.) Water Company. Continuing in this capacity until 1912, Mr. Fairfield was later connected with the business department of the Omaha Bee. He again entered the service of the Burlington in July, 1923, as assistant to the vice-president in charge of public relations, and on January 1, he was appointed assistant to the executive vice-president.

A. Munster, who served as bridge engineer and chief engineer of the Chicago Great Western from 1900 to 1906, died at his home in Seattle, Wash., on May 13 at the age of 75 years. Mr. Munster was born at Bergen, Norway, and graduated from the Chalmers Technical College at Gothenburg, Sweden, in 1874. For the following eight years he was engaged in various capacities as a civil engineer on the Norwegian State Railways, coming to the United States in 1882 where he entered the service of the Northern Pacific as a draftsman. From 1883 to 1900, Mr. Munster served successively as a topographer and transitman on the Northern Pacific, as a draftsman in the office of the surveyor general at Helena, Mont., and as bridge engineer in the office of the city engineer at St. Paul, Minn. He was then appointed bridge engineer of the Great Western, with headquarters at St. Paul, and in March, 1904, he was appointed acting chief engineer at the same point. In April of the next year he was promoted to chief engineer. Since his retirement from railway service on July 1, 1906, Mr. Munster had been engaged as a consulting engineer on the Pacific coast.

Railway Age

Motor Transport Section

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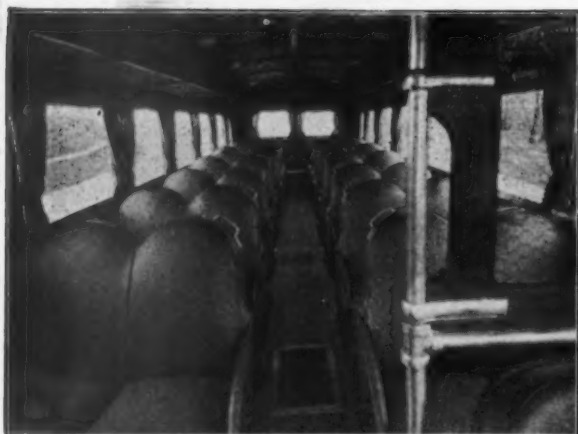
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BENDER BODIES

Railway Age



Motor Transport Section

*Devoted to the
Co-ordination of Railway and Highway Service*



Vol. 86

May 25, 1929

No. 21

Professor Cunningham's Report on Highway Competition

THAT part of the report of Professor W. J. Cunningham for the Committee on Recent Economic Changes which deals with the competition of automotive vehicles with the railways is reproduced on another page herein and will bear careful reading. The report does not contain any conclusions which will prove particularly novel to railroad men who have been following the situation closely. At the same time, presentation of the facts in their true seriousness by an unprejudiced authority may serve to bring recognition and appreciation of the railroads' problem on the part of public men who have thus far been somewhat indifferent. The Committee on Recent Economic Changes made its studies at the behest of government officers, presumably to provide an authentic guide for public policy. This being the case there would seem to be a moral obligation to act upon the findings of the committee. What will be done, therefore, regarding the statement that the railways in many localities have "justification for complaint against unfair competition?" Will the public men who have sought such information as this report contains act upon the findings now that they are available? Will they take due cognizance of the other findings in establishing a legislative policy? Professor Cunningham notes the expansion of motor transport activities by the railways themselves, particularly for the transportation of passengers. Turning to motor truck service, he mentions the beginnings which have been made with store-door delivery and predicts that such service "is likely to be extended when the disputed points of carrier liability and extra charges for the service are satisfactorily settled." A sympathetic attitude on the part of public authorities would undoubtedly aid in furthering the expansion of railway motor transport activities. It is to be hoped that this report will serve to foster such an attitude.

A Breathing Spell for the Motor Transport Division

THE last meeting of the Motor Transport Division was held three months ago, and the next one is more than five months away. Whether this eight months interval between meetings will be so much lost time or so much time put to good use depends upon the various committees of the division. When the division was holding three meetings each year there was some complaint from the committee chairmen that they did not have sufficient time in which to prepare comprehensive reports on the subjects assigned to them. At present, when the adjustment to the basis of two meetings annually is being made, there is surely no cause

for such complaint. Rather, the committees now have an exceptional opportunity to become fully organized, to make thorough studies and to prepare valuable reports. It is expected that the reports rendered at the November meeting at Toronto will deal to a greater extent than in the past with specific problems of motor coach and motor truck operation by the railways. A commendable tendency in that direction was noticed at the last meeting of the division in St. Louis. Most railways now recognize the permanency of motor vehicle transportation, and more of them than ever are now concerned with problems of how they can operate motor coaches and motor trucks most efficiently. Each of the committees of the division has in its membership men of considerable experience in actual motor coach and motor truck, and of course, rail motor car operation. The committees are thus qualified to deal authoritatively with questions of motor vehicle operation and maintenance procedure. These are the subjects in which the railways appear now to be most interested, and it is hoped that the committees of the division will deal with them at length in the reports which they are preparing for presentation at the Toronto meeting.

Contracting for Motor Truck Service

MOST of the large number of railways which are using motor truck tractors and trailers in freight service have secured these vehicles through contracts with independent truck-operating companies. They do not own the equipment, nor do they operate it. In fact, the trucking organizations provide the equipment and the men to run it, and are paid, generally, a certain sum per mile of operation. This is in contrast with the situation with respect to motor coach operation by the railways. Nearly all of the railways operating motor coaches have organized subsidiary companies, usually in charge of railway officers, to own and operate their motor coaches. Some railways which own and operate motor coaches through subsidiaries, contract for their motor truck service. On the surface, at least, the two policies appear inconsistent. Most of the reasons advanced in favor of contracting for motor truck service—inexperience of the railways in motor truck operation, ample equipment available to meet any extraordinary demand on the part of the railways, desirability of retaining the good will of the communities in which the trucking organizations are well entrenched, and the desirability of procuring the services of the trucking organizations as solicitors of traffic for the railways—would appear to apply also in connection with motor coach operation by the railways. On the other hand, the factors which have led the railways to own and operate motor coaches through subsidiary companies, would seem to be applicable equally to motor truck operation. There are, of course, many special

considerations applying to individual cases which affect the decision as to contracting for or owning the motor vehicles used by the railways. Fundamentally, however, it would seem more consistent that a railway should own and operate its motor trucks as well as its motor coaches, or should contract for its motor coach service as well as for its motor truck service. The question is a debatable yet highly important one. We will welcome the views of our readers on it.

A Record for Shop Efficiency

RECORDS for efficiency of any kind deserve more than passing attention. For this reason, it seems justifiable to call attention again to the occasion on which the maintenance department of the New England Transportation Company showed what it could do, when it completely overhauled a motor coach in 7 hrs., 40 min. as reported in the *Motor Transport Section* for April 27, page 1017. This demonstration of shop efficiency is of great interest to every officer in charge of the maintenance of motor coaches. The record of rebuilding a motor coach completely in 63¼ hours was made possible, first of all, by the unit replacement system in effect in the maintenance department of the New England Transportation Company, and also by the character of the organization which put this system into practice. Efficient maintenance, like efficient operation of any kind, is the product of men and methods. The New England Transportation Company has both.

A Distinction Between Looking and Actually Seeing

IN the Motor Transport news columns of this issue will be found an abstract of what is probably the first Interstate Commerce Commission report on a fatal motor coach accident. The report covers the demolition of an interstate motor coach at a grade crossing of an interurban electric railway at Bellevue, Ohio, on January 22 in which 20 motor coach passengers lost their lives. The motor coach driver was thoroughly experienced and, it appears, he at least went through the form of complying with the regulations for approaching a grade crossing—he stopped his coach and looked up and down the track. Testimony differs as to whether or not he alighted from the coach to make his observation more thorough. In any event, however, he did not see the approaching electric car, whether because of heavy snowfall or because his vision was obstructed by the line of poles supporting the trolley wire, or for some other reason. Supposing his vision were curtailed by some obstruction—snow or poles—would that excuse his failure to take other steps as necessary to assure himself that no train was approaching? Apparently not, since the report places the responsibility for the accident upon him. In such a situation, the requirements of safety are not satisfied merely by *looking* in either direction; rather, that length of track necessary to insure a safe passage for the highway vehicle must actually be *seen* and known to be free of approaching trains. The distinction between merely looking and actually taking pains to see is one which is thoroughly understood in railroad operation. Proceeding blindly, because to assure safety would cause delay, is a course of action which no well-disciplined railroad organization would countenance. Making this distinction is a technique which railroads

have developed to a high degree and one which highway transportation can well afford to learn. The extension of railway motor transport activities thus offers to highway transport a definite and much needed contribution—a discipline of safety.

Motor Coach Substitutions for Passenger Trains

THE Chicago, Milwaukee, St. Paul & Pacific has been pursuing a program of reducing operating expenses in every possible way. Particular attention has been given to the matter of lowering the cost of providing passenger service, for the Milwaukee has been a particularly conspicuous target for highway competition. On its somewhat less than 11,000 miles of line it has nearly 8,000 miles of secondary main and branch lines, which, with the spread of improved roads in the Milwaukee territory, have shown less and less revenue from passenger train operation. One of the ways in which the Milwaukee has met this condition has been to substitute motor coaches for unprofitable local passenger trains, and it thus is an excellent example of a profitable use of motor vehicles by a railway.

The Milwaukee has been frank in stating the purpose of its motor coach operations. It has not established its motor coach service with the intention of attempting to recover lost passenger traffic, but has made its changes from steam train to motor coach in order to save operating expenses. That it is accomplishing its purpose is obvious, for the Milwaukee has been able, as a result of its operation of motor coaches, to take off 40 unprofitable local passenger trains, which accumulated more than 250,000 train miles annually. In most instances it has directly substituted motor coach schedules for passenger train schedules, so that on most of its routes, where such substitution has been effected, it is saving directly the difference between the cost of passenger train operation and the cost of motor coach operation. The Milwaukee has not released statistics comparing the cost of motor coach operation with that of passenger train operation on its lines, so that the actual amount of the savings in operating expenses which it has made through motor coach operation cannot be given. Most roads which have published statistics comparing train and motor coach operating costs, have estimated that the out-of-pocket cost of local passenger train operation is about five times the total cost of motor coach operation per mile. It is reasonable to assume that this five-to-one ratio will apply more or less closely to the Milwaukee. On this basis, the replacement of 250,000 train miles means a very substantial annual saving.

It has been pointed out before that, in their consideration of motor coach operation, railways, unlike independent operators, need not be concerned entirely with the question of whether or not they can make their projected motor coach operations profitable in themselves. If they can take off trains in the same proportion that they put motor coaches into service, they can expect that the savings in operating expenses which they will make as a result of this substitution, will be substantially greater than any loss from the motor coach operation itself which might develop through light traffic. Perhaps none of the Milwaukee's motor coach lines are actually making money for the railroad. They may be doing so, of course, but assuming even that they are losing money, the Milwaukee is still profiting from the operation of its motor coaches through the savings in passenger train operating expenses.

R. F. & P. Motor Coaches Nearing a Profit

*Richmond-Washington line revenues
now 24 cents a motor coach mile—
Operating costs about 25 cents*



One of Motor Coaches Which Are Earning 24 Cents a Mile

THE Richmond, Fredericksburg & Potomac, within two months after the inauguration of its motor coach service between Richmond, Va., and Washington, D. C., was earning on this run a gross revenue at the rate of approximately \$6,500 a month, or the equivalent of about 24 cents a motor coach mile. Since it is anticipated that the operating costs, including depreciation, will average around 25 cents a motor coach mile, it is evident that the service, which commenced on March 7, is already approaching a profitable basis.

This road has met similar success in another somewhat different highway passenger service. Motor coaches were substituted for an unprofitable suburban train between Richmond and Ashland, Va. In this instance the motor coaches provide a service six times more frequent than the train formerly did; they earn \$500 a month more in gross revenue and cost \$500 a month less to operate. Thus the net yield in excess of that from the displaced rail service amounts to approximately \$12,000 a year.

These highway services are operated through the railroad's subsidiary, the R. F. & P. Transportation Company. Prior to the inauguration of the Richmond-Washington route, the suburban operation from Richmond to Ashland was operated through a subsidiary

called the Suburban Motor Coach Company. This latter, however, has been merged into the R. F. & P. Transportation Company which now operates all R. F. & P. highway services.

Four A. C. F. motor coaches equipped with Bender Pullman-type bodies and Hall-Scott motors are in service on the Washington run. These are attractively finished in a predominating cream color with blue trimmings and aluminum top. The name of the R. F. & P. Transportation Company is along either side above the windows. At the center of each side, and on the tire rack in the rear, appears the triangle seal of the R. F. & P. enclosed in a circle on which is lettered "Capital Cities Route—Motor Coach Service."

The interior fitting of the coaches are likewise appealing. Seats are provided for 29 passengers and interior baggage racks are ample. A water cooler provides ice water at all times. Smoking is permitted and adequate ventilation is afforded by an electric fan in each corner.

Rates and Schedules

Four daily round trips are made between Richmond and Washington. Coaches leave the former point at 9:00 and 11:30 a. m. and 2:30 and 4:30 p. m. and require approximately 3 hrs. 45 min. to complete their run.

CAPITOL to CAPITOL

EXPRESS MOTOR COACHES

*Quick, Reliable,
Luxurious
Service*

Washington and Richmond
(Interstate Only)

SOUTHWARD

DAILY
(Read Across)

Washington	Fredericksburg	Richmond
9:25 a.m.	11:17 a.m.	1:00 p.m.
11:25 a.m.	1:17 p.m.	3:00 p.m.
2:25 p.m.	4:17 p.m.	6:00 p.m.
4:25 p.m.	6:17 p.m.	8:00 p.m.

Washington—Coaches serve Capitol Park, Continental, Grace Dodge, Howard, Huntington, Raleigh, Willard and Washington Hotels, and Mt. Vernon Ry. Station (Penna. Ave. and 13th St.).

Fredericksburg—Coaches serve Pittman Arms Hotel and R. F. & P. R. Station.

Richmond—Coaches serve Wm. Byrd, Jefferson, Raleigh, Richmond and Murphy's Hotels, and Bus Terminal (4th Street).

NORTHWARD

DAILY
(Read Across)

Richmond	Fredericksburg	Washington
9:00 a.m.	11:00 a.m.	12:30 p.m.
11:30 a.m.	1:30 p.m.	3:00 p.m.
2:30 p.m.	4:30 p.m.	6:00 p.m.
4:30 p.m.	6:30 p.m.	8:00 p.m.

Richmond—Coaches serve Bus Terminal (4th Street), Wm. Byrd's, Richmond, Raleigh's, Jefferson, and Wm. Byrd Hotels.

Fredericksburg—Coaches serve Pittman Arms Hotel and R. F. & P. R. Station.

Washington—Coaches serve Capitol Park, Continental, Grace Dodge, Howard, Huntington, Raleigh, Willard and Washington Hotels, and Mt. Vernon Ry. Station (Penna. Ave. and 13th St.).

R.F. & P. TRANSPORTATION CO.

Poster Advertising Richmond-Washington Route

In the return direction coaches leave Washington at 9:25 and 11:25 a. m. and at 2:25 and 4:25 p. m. The distance between termini is 113.2 miles and each of the four coaches now in regular service makes a daily round trip. Since, however, each coach is withdrawn from service for repairs every fifth day, the daily mileage per coach averages approximately 180. Five drivers are employed, each receiving one day off in every six days.

These Richmond-Washington coaches carry only interstate passengers. This is required by the Virginia law relating to motor coach operation which does not permit the licensing of two competing lines on the same route so far as business between points within the state is concerned. The Richmond-Washington line was already covered by an independent operator and hence the R. F. & P. had to agree to the foregoing legal requirements before its Virginia certificate was issued. Its coaches can, however, pick up interstate passengers along the route, i. e., northbound coaches accommodate any passengers destined for Washington while all southbound passengers from Washington, whatever be their destination along the route to Richmond, are carried.

The one-way fare between Richmond and Washington is \$3.50 as compared with the railway fare of \$4.20. This reduction from the rail rate, however, is regarded as an exception in

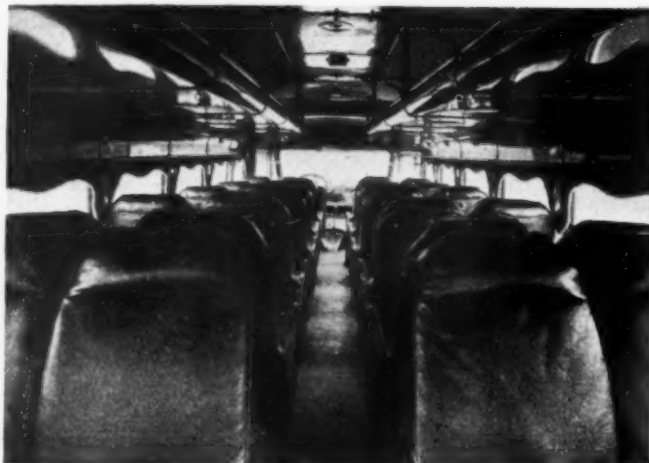
Virginia where most motor coach rates are based on rail rates. Rates from intermediate points into Washington and from Washington to these points grade down to 50 cents. Round trip tickets, limited to 30 days, are available at \$6.00 for Richmond-Washington journeys and at \$3 for Washington-Fredericksburg trips.

In Richmond the coaches stop at a motor coach terminal and other points within the city but do not call at the railroad station. An eight-minute stop is made at the R. F. & P. station in Fredericksburg and several stops are made in the downtown section of Washington, including the railroad station.

While the operation is yet so new that no reliable cost figures are available, it is none the less interesting to examine the traffic statistics since the service was inaugurated on March 7. Especially striking are the results since April 9 when the four new motor coaches were installed on the run.

Attractive Equipment Increases Patronage

During the first week in which this new equipment was in operation 496 passengers were carried and gross revenue amounted to \$1,344, or the equivalent of 20.9 cents a motor coach mile. The second week followed with 526 passengers and \$1,405, or 21.8 cents a coach mile in revenue; the third with 609 passengers and \$1,675, or 26 cents a coach mile in revenue and the fourth with 637 passengers and \$1,803, or 28 cents



Interior View of Richmond-Washington Motor Coach

a coach mile in revenue. This rapid increase is attributed largely to the appeal of the new equipment.

As was stated at the outset it is anticipated by officers of the R. F. & P. Transportation Company that the operating costs per motor coach mile, including depreciation, will not normally exceed 25 cents on this Washington run. The foregoing figures, therefore, indicate that the line was earning a slight profit in the latter two of the four weeks reviewed.

During the month of April, 2,460 passengers were carried and gross revenues amounted to approximately \$6,700. This latter is equivalent to about \$2.67 per passenger, \$27.36 per motor coach trip and 24 cents per motor coach mile. Motor coaches make about 27,600 miles per month and passengers average 2,500 per month or 87 per day.

Motor Coach Patronage Not Drawn from Trains

It is also significant to note in connection with these traffic statistics that the motor coach passengers have not been diverted from the rail line of the R. F. & P. The total passengers on the Richmond-Washington rail line plus the passengers on the motor coach line exceed the 1926 peak in rail travel between the two cities, indicating that a portion at least of motor coach traffic is non-competitive with rail. Furthermore this traffic developed within a three-month period with an independent competitor operating seven daily round trips over the same route. This initial success is especially gratifying since the operation was launched with the expectation that it would become profitable, there being no accompanying train discontinuances from which a saving could be anticipated.

When the service was inaugurated, the R. F. & P. traffic department issued an explanatory folder entitled "A Few Questions Answered about Motor Coach Service on the Richmond-Washington Highway." This states

*A few
Questions
Answered*

ABOUT
**MOTOR COACH
SERVICE**
ON THE
**RICHMOND-WASHINGTON
HIGHWAY**



**R. F. & P.
Transportation
Company**

Cover of Folder Issued by Traffic
Department

and answers questions which might arise regarding the railroad's entrance into the highway field. The appealing cover of this folder is reproduced in an accompanying illustration. It is set forth therein that a liberal offer was made for the independent Richmond-Washington line before the new service was launched.

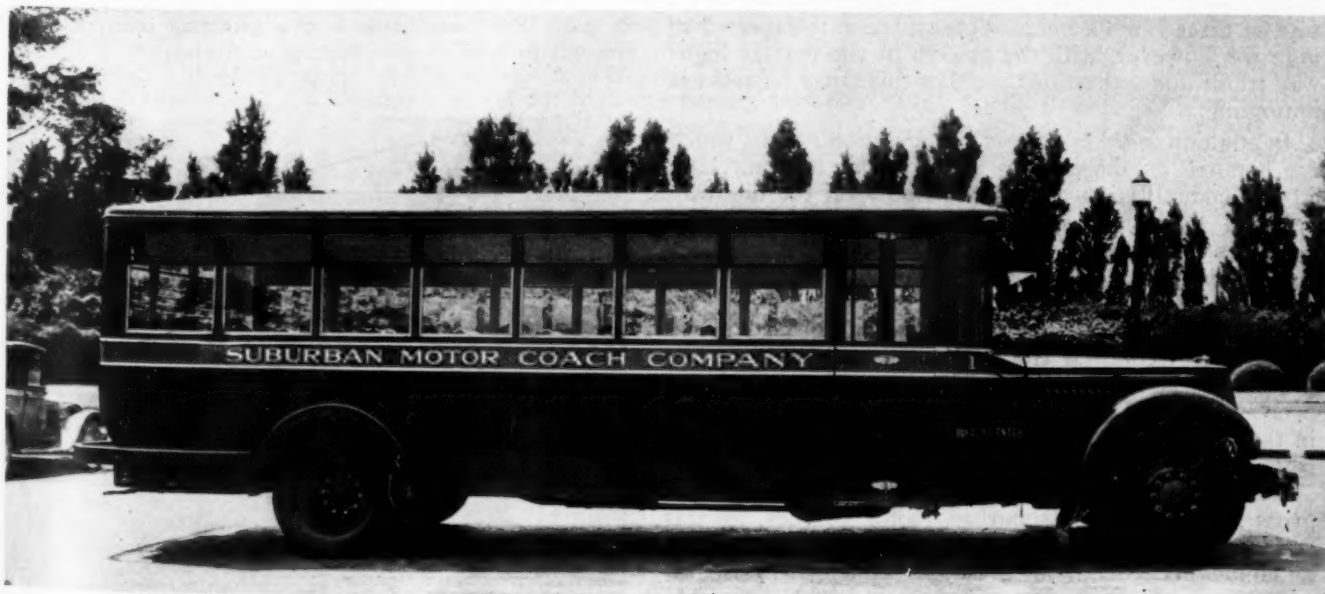
The motor coaches are maintained at Washington and Richmond under contracts. At the former place the work is done by the Washington Rapid Transit Company while at the latter the agreement is with the Virginia Electric Power Company. This maintenance cost averages approximately 2.21 cents a motor coach mile in the winter months.

Suburban Operation Reduces Expense, Increases Revenue and Provides Better Service

The suburban operation between Richmond and Ashland was first inaugurated as a part time service on August 15, 1928. The following month, however, full schedules were installed when a morning train from Ashland into Richmond and its return run to Ashland in the evening were discontinued. Thus the service

is in lieu of rail service and motor coaches serve all rail stations formerly served by the train. It is a 15-mile run in each direction and the equipment consists of three Mack suburban-type motor coaches.

The train which was supplanted formerly left Ashland at 5:40 a.m. to arrive in Richmond at 6:20 a.m. In the evening the return run was scheduled out of Richmond at 6:30 p.m. to arrive in Ashland at 7:10 p.m. This was once one of the heaviest suburban runs on the R. F. & P., since the train carried 200 to 250 passengers and required five coaches. Travel fell until there were less than 100 passengers and equipment was reduced to two coaches. Likewise revenue declined from a maximum of \$19,886 in 1915 to \$4,576 in 1927, the last full year of the train's operation.



One of the Suburban Motor Coach Fleet

Motor coaches now make two morning runs from Ashland into Richmond, leaving the former point at 5:30 and 6:10. This gives the patrons a more flexible travel schedule than was available with the displaced train. In addition there are two forenoon motor coach runs, on a round trip from Laurel, a point intermediate to the two termini, into Richmond and another from Glen Allen, also an intermediate station. A similar frequency of service is provided in the afternoon and evening.

The three motor coaches operate 4,600 miles a month or an average of only 60 miles a day for each coach. This low mileage is due to the nature of the traffic, which is comprised largely of commuters, and hence schedules must be concentrated in the morning and evening so as to accommodate these patrons. The total motor coach mileage, however, is six times the former train mileage operated on the run.

Revenue Tripled, Deficit Reduced Two-Thirds

With this greater frequency of services, motor coaches during January, 1929, the second full month of operation on the complete schedules, earned \$500 more than was earned by the displaced train during any of the final months of its operation. That these increased earnings have continued to grow is indicated in the following tabulation of monthly revenues from December, 1928, to March, 1929:

December	\$ 789
January	923
February	898
March	1,012

It is pointed out in this connection that the route serves a growing suburban territory and the motor coach traffic therefrom evidently tends to grow whereas the opposite was true of the rail traffic. Passengers now average 191 per day as against an average of 84 paying passengers and 36 holding passes on the train displaced. No railroad passes are honored on the motor coaches.

Low Rates for Commuters

The revenue showing is hampered by the fact that railroad commutation tickets are honored on the motor coaches. Since this commuter traffic predominates and the revenue per passenger mile on it averages less than one cent, the general average revenue per passenger mile is depressed to 1.83 cents, despite a regular motor coach rate of three cents a mile. This situation is expected to improve, however, with the growth of the regular highway traffic and indications are that this latter business is improving.

In addition to these railway commutation tickets, which are honored on the coaches, patrons may also purchase 30-trip commutation tickets good only on the highway vehicles. Rates on these latter vary from \$2.30 for distances of five miles or less to \$3.65 for distances over eight and up to 19 miles. Scrip books of 50 coupons with total face value of \$2.50 also are sold for \$2. Children under five years of age when accompanied are carried free; children from five to twelve years of age are carried at half fare and those twelve years old and over are charged the full rate. Hand baggage is carried in the custody of the owner and at the owner's risk. No baggage checks are issued.

Despite this tendency of commutation rates to depress gross revenues, these suburban motor coaches, as was stated at the outset, have enabled the R. F. & P. to realize an annual net economy of \$12,000. This is comprised of a \$500 per month increase in revenues and a monthly saving of \$500 in expenses. The following figures com-

pare former out-of-pocket train operating costs and revenues with similar figures for the motor coach operation:

Average Cost Per Month

	Steam Train Service	Motor Coach Service
Operating Costs	\$1,864	\$1,398*
Revenue	305	856
Deficit	1,559	542

*Depreciation \$457

As the tabulation indicates, the motor coach operating cost figure includes \$457 for depreciation. These coaches are depreciated on a time basis over a five-year period. Because of the low mileage made on the runs this depreciation cost amounts to approximately 11 cents a motor coach mile. Even with this high depreciation rate, however, the route would be profitable of itself if it were not for the influence of the rail commutation rates. In addition to the saving in operating expenses, which the discontinuance of the train permitted, there was the added advantage in the elimination of this unprofitable train from a busy main line, over which 80 or 90 trains are run daily. When these advantages were pointed out to the Virginia commission, no difficulty was experienced in receiving the desired permits. The train discontinuance and the coach substitution were proposed at the same time and a favorable decision was rendered orally from the bench.

Railroad Employees Serve as Part-Time Drivers

Only one regular driver is employed on this suburban route. For additional compensation, two R. F. & P. railroad employees who live in Ashland, drive the two through runs in the morning and the return trips in the evening on their way to and from work.

Officers of the R. F. & P. Transportation Company are the same as hold similar positions with the railroad, and include: E. Hunton, Jr., president; Norman Call, vice-president; W. D. Duke, general manager and J. B. Mordecai, traffic manager.

THE PUBLIC SERVICE COMMISSION of New York State proposes to issue an order designed to insure that motor coach operators shall so equip their vehicles that passengers shall not be subjected to danger from the effects of carbon monoxide gas. The Commission is now gathering information and proposes to hold a public hearing at Albany.

* * *



An A.C.F. in Jersey Central Service



White Model 54 Parlor Type Coach Operated between Rockwell City, Ia., and Storm Lake

Substitutes Motor Coaches for Local Trains

*Chicago, Milwaukee, St. Paul & Pacific has taken off
40 unprofitable local runs amounting to
250,000 train miles annually*

LIKE other roads, the Chicago, Milwaukee, St. Paul & Pacific has felt keenly the steadily increasing losses in local passenger traffic which it has suffered as a result of the competition of private automobiles particularly, but also of motor coaches on the highways. The nature of its railway system is such as to make it a particularly conspicuous target for highway competition for out of a total of 10,891 miles of line, it has 7,850 miles of secondary main lines and branch lines.

The operation of motor coaches is one of the means which the Milwaukee has adopted to adjust itself to present conditions. As yet, it has not engaged in motor coach operations on a particularly extensive scale, but following the procedure of establishing the kind of local service required to meet the conditions of particular branch lines, it has established eight motor coach routes. Four of these are located in the state of Wisconsin, three in the state of Washington, and one, the most recent operation, in the state of Iowa.

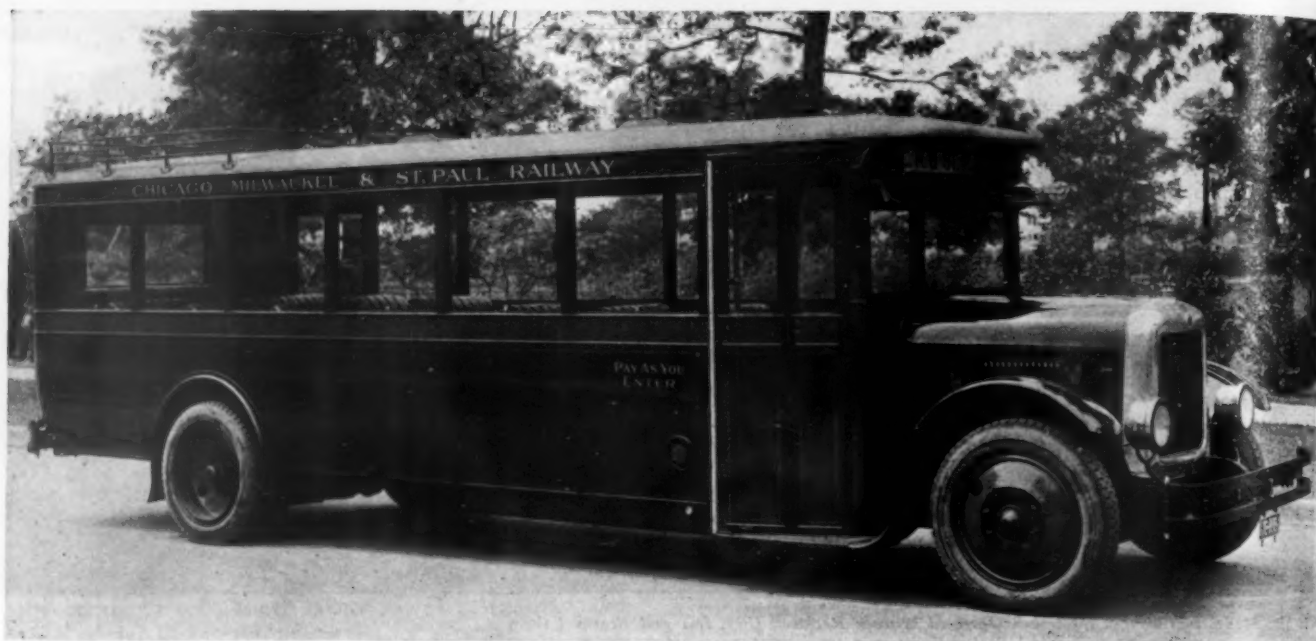
In almost every instance, the motor coaches operated by the Milwaukee have been put into service in direct substitution for steam passenger trains. The purpose has been to reduce the cost of operation on these lines,

the traffic of which has declined to a considerable degree in recent years. The motor coach operation on a whole has enabled the elimination of 40 passenger train schedules per day, or an aggregate of 696.4 passenger train miles daily, or about 250,000 per year.

The Milwaukee has not organized a subsidiary to operate its motor coaches, nor does it own all of the equipment used in its service. In fact, it now owns only five motor coaches, including two just delivered, which cover five separate routes, and contracts with established motor coach operators in the various localities for the six motor coaches used on its other highway routes. Tickets of railway issue are, of course, honored on all coaches operated by or for the Milwaukee.

Most of the motor coach lines are quite short in length. They range in length from 7.4 miles to 78 miles, the average of the four operations in Wisconsin being 17.5 miles.

The first motor coach operation established by this railway was in the nature of a shuttle service, between Racine, Wis., and Sturtevant, which is on the main line between Chicago and Milwaukee, Wis. Formerly, 22 steam trains were operated over this 7.4 mile branch line daily, accumulating 162.8 passenger train miles



One of the Yellow Coaches Owned by the Milwaukee

daily. With the complete substitution of motor coach service for passenger train service on this line, the company is now operating ten round trips daily, except Sunday, and six round trips on Sunday. One motor coach is assigned to this operation, it being furnished through a contractual arrangement. This operation was established in March 1927.

In the same month, the Milwaukee replaced six local passenger trains between Lone Rock, Wis., and Richland Center. The one-way mileage between these points is 15.5, and the daily passenger train mileage eliminated through the taking off of the trains was 93. The Milwaukee did not contract for motor coach service over this route, but purchased a Type Z Yellow coach to handle the business. This coach is now making two round trips daily, except Sunday, and one round trip Sunday, between Lone Rock and Richland Center.

The next motor coach operation established was between Fond du Lac, Wis., and Iron Ridge, a distance of 28.2 miles. Four passenger train schedules over this branch line were eliminated, saving 112.8 passenger train miles daily. The motor coach substituted for the passenger train now makes two round trips daily, except Sunday, over this line. As in the case of the Lone Rock-Richland Center operation, the Milwaukee did not contract for motor coach service, but purchased a Type Y Yellow coach to make the necessary trips.

Washington Operations

Three motor coach routes are covered by the Milwaukee in the state of Washington. One of these lies between Tacoma, Wash., and Morton, the line running via Ashford. The one-way mileage of this route is 78. Two round trips daily except Sunday, are operated between Tacoma and Morton, two motor coaches being required to furnish this service. These were secured under a contract with an independent motor coach operator. As a result of this operation of motor coaches the Milwaukee has been able to eliminate two passenger trains daily, saving 134.6 passenger train miles.

The other two Washington highway routes cover the territory between Tacoma and Kapowsin, and between Tacoma and Eatonville. One motor coach is assigned to each of these routes, these being provided under con-

tract with the same company which provides the Milwaukee's motor coach service between Tacoma and Morton. Two round trips daily, except Sunday, and one round trip on Sundays, are operated between Tacoma and Kapowsin, the one-way mileage being 23. Two round trips daily, except Saturday and Sunday, are operated between Tacoma and Eatonville, a distance of 32 miles. On Saturdays and Sundays, the motor coach makes three round trips between these points.

In May, 1928, the Milwaukee established motor coach service, to be operated during the summer season only, between Minocqua, Wis., and Boulder Junction, a distance of 20 miles. One motor coach is operated over this line, and it makes one round trip daily. Two daily passenger train schedules were eliminated when the motor coach service was established, saving 40 passenger train miles daily.

The newest motor coach operation of the Milwaukee was established on April 1 of this year. It extends between Rockwell City, Iowa and Storm Lake, a distance of 38.3 miles. Two round trips daily, except Sunday, are made by the motor coach used on this route. It has made possible the elimination of four daily passenger train schedules, saving 153.2 passenger train miles daily. A White Model 54 motor coach was purchased by the Milwaukee to carry on this service. As in the case on the other lines, where motor coaches have been substituted for trains, the coach schedules approximate those of the replaced trains.

To Save Operating Expenses

"We have not established any motor coach service with a view to recovering passenger business," said H. A. Scandrett, president of the Milwaukee, in a statement regarding his road's highway operations. "The change from steam train to motor coach service was made in order to save operating expenses; but where arrangements have been made with established motor coach lines, we believe that such lines, acting as our agents, will bring additional traffic to the railroad. We propose to continue the practice of substituting motor coach service for passenger trains in territories where concrete highways are constructed, and there is greater use made of automobiles between common points."

W. J. Cunningham on

Highway Competition

*Report to Committee
on Recent Economic*

*Changes weighs effects—
tells what roads are
doing to meet the situation*

W J. CUNNINGHAM, James J. Hill professor of transportation at Harvard University, in reviewing the transportation situation for the Committee on Recent Economic Changes, dealt with the question of motor coach and motor truck competition with the railways as follows:

The passenger automobile as a modern agency of transportation is about twenty-five years old. The motor truck and the motor coach are even younger. Yet in many respects the automotive industry, in its quarter-century of development, has outstripped the railways, now a century old. The public investment in motor vehicles and hard-surfaced highways now exceeds the public investments in railways and their equipment. The number of employees in the automotive industry and highway transportation is more than those engaged in railway service. Motor vehicles now rank first in value of annual products and third in value of exported goods.

The effects of the private automobile and the motor coach on railway passenger traffic, and of the motor truck on railway freight traffic, are difficult to measure accurately. It is impossible to determine how many passenger-miles made by private motor vehicles are due solely to the desire to ride for pleasure, and how many passenger-miles are substitutes for railway transportation. To a large extent the passenger traffic by highway is not competitive with railways. It is created by the automobile itself, and would not be produced by railways if the automobile were not available.

Passenger traffic by motor coach, however, is highly competitive with the electric and steam railways. The motor truck, almost entirely displacing the horse-drawn vehicles in urban communities, has widened the zone of local trucking and is taking from railways a substantial part of short-haul traffic in small shipments. In practically every city there are organizations of common carriers by motor truck. Then there are the contract truckers who serve only one or a limited number of customers under contract, and finally there are the trucks owned and operated by the individual industries for their own service exclusively.

The steady decline in railway passenger traffic since 1920 is evidence that the competition of motor vehicles is severe. The automobile is being used more and more on relatively short trips, both for business and pleasure, that formerly were made by rail. The public has recently shown a decided preference for the motor coach over the steam railway coach and the trolley car.

Pullman and Suburban Business Not Declining

The railway loss has not been in the long-distance passengers. The Pullman car statistics support the statement that railway long-distance passenger traffic con-

tinues to grow slowly. It is probable, however, that the growth would have been much greater if the automobile and motor coach had not been developed.

Nor is the railway loss in suburban traffic. The number of commutation passengers has been

increasing steadily—about 3 per cent per year since 1921. The railway loss is confined almost entirely to the traffic on local trains between adjacent cities or on secondary or branch lines. Such losses are serious, as the local passenger trains ordinarily have been poor earners, if not unremunerative, and the lighter loads have increased the number of trains with gross earnings less than the actual "out of pocket" expenses. This has brought about curtailment of train service or abandonment of branch lines, when such action is permitted by the regulatory authorities, and the effect of poorer railway service has been to stimulate the transfer of passengers to the highway.

The railway managers are concerned about the heavy losses in passenger traffic and the further competitive possibilities. To meet the new form of competition, many railways, besides improving their through train service, have organized motor coach companies as subsidiaries, and are recapturing a part of the lost traffic by catering to the public preference for rubber tires over steel. Motor coach lines are being operated by railways as substitutes for branch line steam trains, as auxiliaries to rail service, and even in the duplication of rail service. The railways, either directly or through subsidiaries, early in 1928 operated about 1,046 motor coaches over 10,519 route miles, and the service is expanding. The importance of this new railway activity is shown by the fact that the American Railway Association has recently created a new organization known as the Motor Transport Division of that association.

140 Trucks Required to Haul a Train Load

The competition of motor trucks in freight service is not so alarming from the railway point of view. The potentialities are not as great as in passenger service. A reasonable estimate of the transportation production of all motor trucks on the highways outside of cities is that they produce a total ton-mileage equipment to less than 3 per cent of the actual ton-miles produced by railways. In mass movements over long distances the railway is supreme. To haul as much revenue freight as is carried by the average freight train with a crew of five or six men would require at least 140 fully loaded five-ton trucks, with at least that number of operators, and with a total fuel cost of over \$5 per mile in contrast to the railroad fuel cost of about 50 cents per mile.

The trucks cannot compete successfully, except in the narrowly limited field of small short-haul shipments of

relatively high value, or when the combination of pick-up, road haul, and final delivery service by truck saves time and minimizes damage or loss by theft. The zone, within which motor trucks can economically compete with railways for the transportation of selected commodities, varies with local conditions, but in a typical case the limit is from 30 to 50 miles, with a wider range under conditions more favorable to the truck and for a small number of commodities.

The railway commodity statistics show that the volume of less-than-carload freight is declining. A part of the loss may be attributed to motor truck competition. Studies made by the highway authorities of several states indicate that the volume of truck-borne tonnage which might move by rail is substantial and is increasing. Relatively, however, the freight which the motor truck is taking from the rails is small and, what is more important, it is the kind of traffic which the railways can give up with little, if any, net loss. The small short-haul shipments, while yielding a high gross revenue per ton mile, are carried at exceedingly high ton-mile cost, and the net revenue is relatively low.

This kind of traffic is burdensome in its demands upon terminals and freight cars, and usually is moved in way-freights, the poorest paying of freight trains. Confronted with the continuing necessity for enlarging terminals and increasing the productivity of equipment, the railways may regard with equanimity the loss of a part of the tonnage which is least attractive from the viewpoint of net revenue, and they can devote the released capacity in facilities and equipment to the long-haul and better-paying tonnage.

Store-Door Delivery Likely to Be Extended

As in the case of competition of motor coaches in passenger service, the railways are entering the field of motor trucking by establishing highway freight service where it is more economical or gives better public service than by rail. In this field, however, railway activity is not as great as in meeting motor coach competition. Thus far the railway-controlled highway freight service is confined to substitution of trucks for way-freights or branch line trains, or to serve as collecting or distributing media within metropolitan zones. To a small extent, a few railways have gone into the so-called "store door delivery" plan, under which the freight is called for or delivered by railway-controlled motor trucks. This practice is likely to be extended when the disputed points of carrier liability and extra charges for the service are satisfactorily settled.

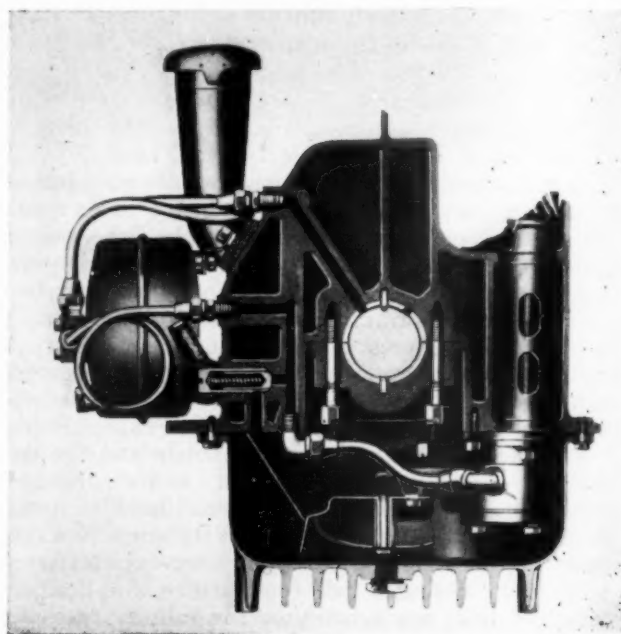
Unfair Competition

The possibility of further inroads on railway revenues by highway competition depends in part upon Congressional action. To a large extent, motor vehicles, notably motor trucks, are unregulated except in minor particulars. In some states the authorities exercise certain police powers, especially with respect to motor coaches, but, broadly speaking, the trucks have a free hand in the matter of rates and assume no continuing obligation to serve. Under such circumstances, the railways have justification for complaint against unfair competition. Efforts have been made to enact a law which would place definite obligations upon common carriers by highway, and there was promise that action hearing upon motor coaches would be taken by Congress early in 1928. The bill, however, was not enacted. While it is probable that a similar bill affecting motor coaches may be passed in 1929, the likelihood of federal regulation of trucks is more remote.

Reo Gold Crown Engine

THE Reo Motor Car Company, Lansing, Mich., has designed for use with its series of Reo Speedwagons, the Reo Gold Crown engine, the feature of which is the method of constantly filtering the oil before it passes through the bearings. The six 3 $\frac{3}{4}$ -in. by 5-in. cylinders develop 67 hp. at 2,800 r.p.m. The compression ratio is 4.7 to 1, or 80 lb., which places it with the medium compression type engines. The total main bearing area of the seven-bearing crankshaft is 87.12 sq. in. The crankshaft is statically and dynamically balanced and is equipped with the Lanchester type vibration dampener. A 70-lb. flywheel is now used with these engines.

The cylinder block is made from chrome-nickel alloy iron, and aluminum alloy pistons are used for greater



Cross-Sectional View of the Reo Gold Crown Engine Showing the Method of Filtering the Oil

conductivity and lighter reciprocating parts. A new type of valve tappet construction is used, which consists of a Wilcrome steel cap, which is placed on the valve tappet. The valve tappets are actuated by a mushroom-type valve lifter. A Schebler automatic air-valve carburetor is used, which is of the high compression type with a turbulence type head. The carburetor is calibrated to permit the use of all gasolines.

The main, connecting rod and camshaft bearings are pressure lubricated. The oil passes through a filter each time before it passes through the bearings. The location of the filter and the passage of the oil through the pump to the bearings are shown in the illustration. The sprockets and timing chain are flood lubricated. The oil pan is made with fins so that the oil may be properly cooled. An extra large fan and water pump are also used on these engines.

THE GREYHOUND LINES, independent motor coach operator, has developed a dispatching system which keeps operating officers informed at all times as to the location of every motor coach and driver. This dispatching set-up is in each division office for the territory covered by the division while a central dispatch board is located at the system's main dispatch headquarters.

Records Facilitate Truck Supervision

Canadian Pacific Express Company maintains close check of big fleet by extensive record-keeping system

SOME interesting and comprehensive forms have been devised by the Canadian Pacific Express Company for recording performance and cost data on its motor trucks. Especially worthy of mention is the monthly report form shown in an accompanying illustration, one of which is filled out each month for each of its motor trucks. When an official of the company wishes to know how any single motor truck or any particular group in the C. P. Express fleet is performing, he can quickly and easily acquire this information by studying the monthly report sheets.

The monthly report form is 12½ in. by 8½ in. in size. As can be seen in the illustration, provision is made for recording a variety of data on performance, fuel consumption, costs, tires, etc. Space is also provided, as shown, for accumulative records. From the various monthly reports, then, it is easily possible to plot charts and curves and thus picture trends and comparisons, and from these, base decisions on corrections of malpractices, replacements, maintenance, etc.

The Canadian Pacific Express Company operates over the lines of the Canadian Pacific Railway, and various other lines, its total operating rail mileage being 17,350. In making city deliveries, the company makes use of a considerable number of motor trucks. In the care and operation of this fleet, notable efficiencies have been attained. Undoubtedly, the continual close check of performance and operating costs made possible by the maintenance of comprehensive records have been an important factor in bringing about these efficiencies. The result is reliable and speedy city delivery service.

Montreal is the largest city in Canada and the C. P. Express motor truck fleet in this important metropolis consists of 49 units and 12 trailers under the direct supervision of A. C. Thorn, general agent, and F. W. Branscombe, general superintendent. The trucks are equipped with stake bodies, which were built especially according to Canadian Pacific Express specifications. This article will deal largely with methods of supervising the operation of trucks in Montreal and with the



An International Harvester 1½-Ton Truck of the Canadian Pacific Express Fleet

Form 240

CANADIAN PACIFIC EXPRESS COMPANY

Motorman's Report on Truck No. _____

Fill in below and indicate condition of equipment at end of each week, or any day repairs are considered necessary.

The condition of the mechanical equipment, so far as I can determine, is as follows:—

Radiator _____	Universal Joints _____
Engine _____	Rear Axle _____
Carburetor _____	Brakes _____
Magneto _____	Rear Wheels _____
Generator _____	Front Wheels _____
Starter _____	Tires _____
Wiring _____	Steering _____
Battery _____	Frame _____
Headlight _____	Fenders _____
Tail-light _____	Windshield _____
Clutch _____	Body _____
Transmission _____	Top _____
Drive Shaft _____	
Miscellaneous _____	
Remarks _____	
Date _____	Driver _____

Drivers Report the Mechanical Condition of Their Trucks at the End of Each Week

manner in which data are collected for inclusion in the very interesting monthly report mentioned above.

The Monthly Report

At first glance, this monthly report, which is made out for each truck, may seem formidable, but a moment or two of study reveals it to be most complete and not at all bewildering. It provides a very comprehensive picture of the monthly expense of operating the truck. Then, there is a monthly recapitulation form, shown in an accompanying illustration, on which are detailed the expenses of all the trucks in service and which provides a ready means of comparing operating costs and performance of all trucks.

An outstanding feature of the form is the fact that it may be used by any operator, whether he has a small fleet or a large one. For the common carrier or the private carrier, the only item that it would appear necessary to add is that of ton miles. All or part of the form may be used as the business warrants.

In compiling such a form, it was recognized that the less clerical work there is put on the garage staff, the better. Daily reports are made out by the garage men, showing the amounts of gas and oil put in each truck, and the meter readings. Reports are also made when each truck is lubricated, Alemite applied (twice a month, at least), wheels greased, universal joints greased, etc. In an accompanying illustration is shown a driver's report form on which the condition of mechanical equipment is recorded.

From these reports, part of the monthly record of expenses on each truck is compiled. The office staff computes the mileage for the month, the average daily mileage and the number of miles run per gallon. From

the invoices received from the oil companies, the cost of the fuel, oil, grease, etc., is worked out. This furnishes the initial statement of direct expense chargeable against each truck.

Indirect Expense Items Computed

Then come what are termed the indirect expense items. It costs a considerable sum of money to operate a garage, and a portion of such cost is properly chargeable against each truck using the building. So it is for this reason that there is found charged on the monthly form a proportion of each of the following items under the heading of garage expense: Light, heat, water, wages, rent, taxes, telephone, washing, depreciation on garage equipment, and miscellaneous garage expenses.

Each month one-twelfth of the cost of the motor licenses and one-twelfth of the insurance premiums are charged against each truck. Provision is also made for depreciation, less tires. The Canadian Pacific Express Company depreciates its one-ton trucks on the basis of 36 months less 16 per cent salvage, and other heavier trucks on the basis of 60 months less 15 per cent salvage. The cost of tires is deducted from the total cost of the vehicle because it will be noticed that tires are depreciated separately. Each month, therefore, one thirty-sixth of the net cost of the light trucks and one sixtieth of the net cost of the heavier vehicles is written off for depreciation, so that at the end of the alleged useful life of each vehicle there is a reserve sufficient to take care of renewal.

Passing on to the next item, it will be seen that the repairs on each truck are charged, separate headings

Form 241

MOTOR TRUCK REPORT

OFFICE _____ MONTH _____ 1929

No. of Truck 11143 Make _____ Capacity 12 Commenced Service Oct. 1928

Operator _____ Helper _____

Service Days for Month 24 Days in Service 24 Days in Shop _____

Mileage for month 652 Average Daily Mileage (Service Days) 27.17 Miles per gal. gasoline 11.44

Gasoline: Make _____ Grade _____	3/162 100.	Total \$ <u>11.03</u>
Oil: Make _____ Grade _____	10 P. @ .24	Total \$ <u>2.40</u>
Grease: Make _____ Grade _____	2 lbs. @ .10	Total \$ <u>.20</u>
Miscellaneous Supplies (Specify) _____		Total \$ <u>.22</u>

Garage Expense: Light .66 Heat 1.50 Water .27 Wages 8.31 Rent .01 Taxes 1.24

Telephone .12 Washing 2.10 Depreciation on Garage Equipment .82 Misc. _____ Total 12.71

Motor License—1-12 for Month \$ 3.00 Insurance 1-12 for month \$ 1.80 Total 4.80

Depreciation, less Tires _____ Total 18.51

REPAIRS: Engine Parts 2.00 Chassis Parts _____ Body Parts _____ Painting _____

Labor _____ Labor _____ Labor _____ Total 5.00

(Tires Depreciation for Month \$ 5.52, Tire & Tube Repairs \$ _____ New Tires _____ Total 5.52)

Sub-Total Expenses per Mile for Month 11.19 Sub-Total for Month 72.14

WAGES: Operator \$ 120.00 Helper \$ _____ Overtime \$ _____ Sub-Total 120.00

Sub-Total Wages and Overtime per Mile for Month 1.922 Grand Total 101.99

Grand Total Cost per Mile for Month 11.12 *Repairs due to accident to be fully explained on back of report.

(To figure tire depreciation: Divide total tire cost (\$ 5.52) by guaranteed mileage and multiply by mileage run during month. When full guaranteed mileage has been run extend no charge.)

TIME RECORD

	Tire No.	Make	Size	Date put on	Cost	Mileage (Mileage per Month/Service Days)	Mile Total	Mileage Remaining
Right Front	127832		30x8	Sept. 29-28	—	652	18438	18086
Left Front	228614		"	Dec. 1927	35.10	581	3574	4155
Right Rear	772770		"	July 1-28	29.25	652	3891	4543
Left Rear	882078		"	June 1-28	28.25	652	3284	4656
SPARE	822708		"		25.50	61	—	61

Date oil changed in motor 24 Date Alemite or Grease 1-12-28 Date wheels greased 7

Date Universal joints greased 24 Is lubricant up to level in Transmission and Differential Yes Is Tire Inflation O.K. Yes

Proper lubrication is the secret of successful motor truck operation. Check cars should be well drained and filled with fresh oil once a month, using lighter grade of oil during cold weather. Gear lubricant in transmission and differential should be drained twice a year (Spring and Fall) and replaced with fresh lubricant, using fairly heavy lubricant during Summer and a lighter lubricant during Winter. Inspect monthly to maintain proper level. Lubricate universal joints twice a month and front and rear wheels once a month. Attention should be given at least every ten days and Ford chassis, where oil is standard equipment, should be oiled twice a week.

ACCUMULATIVE RECORD

Total Service Days 212 Total Days in Service 202 Percentage days in Service 95.29 Total Mileage 18128

Average Daily Mileage (Service Days) 27.09

Total cost operation less wages \$ 2101.51 Cost operation per mile less wages 10.57

Total repairs less painting and accidents \$ 82.97 Repair Cost per mile .046 Mile per gallon gasoline 11.44

Grand Total cost operation including wages \$ 2679.51 Average cost per month \$ 202.82 Av. cost per mile .2770

ACCUMULATIVE REPAIR COST LESS PAINTING AND ACCIDENTS

Year	No. Months	Miles	Repairs	Expense per Mile	Depreciation
1928	2	2024	1.08	.0007	—
1927	12	8279	21.07	.0026	278.04
1926	12	8020	54.88	.0080	228.04
1925	1	652	2.00	.0030	19.22
TOTAL	25	19125	89.03	.0046	525.30

The Monthly Truck Report Gives Complete Information About Each Unit

When a driver has to fill out forms in regard to the operation of his truck, and he knows that other reports are made out, he naturally exercises greater care in his work. In other words, he becomes a better driver. A casual survey at any time of any C. P. Express truck provides ample evidence that it is unusually clean

- One Demerit Mark each for:**

1. Failure to keep tires properly inflated.
2. Damage to tires as result of careless driving, striking curb, running in street car tracks, as determined by Agent.
3. Carelessness in general operation of truck as determined by Agent.
4. Failure to report promptly items requiring adjustment or repairs.
5. Failure to keep battery plates covered with distilled water.
6. Failure to keep radiator filled with water.
7. Failure to keep motor, motor pan, and transmission clean.

[illegible]

The Recapitulation of the Monthly Reports Permits a Comparison of the Performance of Different Trucks

8. Failure to protect radiator from freezing.
9. Racing motor when cold.
10. Neglect to retard spark when starting motor, resulting in broken bendix gear or spring.
11. Failure to give necessary attention to oilers on generator, starting motor, distributor head, and brake shafts.
12. Allowing motor to run unnecessarily when truck is standing.

Maintenance Operations Regulated

Efficient maintenance of a motor truck fleet is facilitated by regular schedules for inspections, lubrication, washing, etc. Emphasis is placed particularly on the need of regular lubrication of motor trucks. As is stated in a paragraph on the monthly report form shown herewith, "Proper lubrication is the secret of successful motor truck operations," and so careful instructions have been issued as to how and when this very necessary work must be conducted. These instructions are as follows:

Lubrication Schedule

- The following schedule will be used as a guide by employee in charge of lubrication:

Item No. 1

On the first working day of each month, motors shall be drained of old oil and refilled to proper level with oil of proper grade.

Item No. 2

On the fifteenth (15th) working day of each month, transmissions, differentials and wheel hub caps shall be refilled with lubricants of proper consistency if required.

Item No. 3

On the sixteenth (16th) working day of each month, trucks classed as specials shall be drained of old oil and refilled as per instructions outlined in Item No. 1.

Item No. 4

Lubricants and fittings required to service trucks must be charged and charge slip placed on board used for this purpose. The transmission lubricant is figured at one pound per stroke of pump handle.

Item No. 5

If during the course of his work, an employe should notice something which he thinks is wrong or needs repairs, he must make out a repair slip with the truck number, the defect found, and his name.

Item No. 6

Each and every point of truck presenting two metal surfaces in friction must be lubricated at least once each week.

Clutch, fan, and rear wheels will cause unnecessary trouble if lubricated too freely. Care should be taken to see that these parts get enough but not too much lubricant.

"Traveling Billboards"

Motor trucks, when neatly finished and provided with attractive looking signs, have very aptly been referred to as traveling billboards. The Canadian Pacific Express Company is continually conducting an extensive advertising campaign, and is therefore fully aware of the large amount of advertising that it derives from its many motor trucks traveling almost everywhere in various cities throughout Canada. All motor trucks are painted red, and, with the name of the company in gold letters, they present a striking appearance. Regular washings are scheduled to keep the trucks looking neat and trim at all times. A schedule for repainting the trucks is also carefully adhered to.

A blackboard is provided in the garage for posting information as to when washing, oiling, and greasing have been performed on the various trucks. The drivers watch this board and are expected to report any neglect of their trucks by garage attendants in regard to work to be done as designated in the posted schedules.

Careful check of motor truck performance, close supervision of drivers, and regular schedules for doing essential maintenance work, enable the company to get maximum service out of its truck fleet at the lowest possible cost. The company has learned from long experience that it pays especially to have adequate records. By means of these records Canadian Pacific Express city delivery service is maintained at a very high degree of efficiency.

Pennsylvania Highway Certificates Issued

THE Pennsylvania General Transit Company, highway subsidiary of the Pennsylvania, has been granted permission by the Public Service Commission of Pennsylvania to operate motor coaches over two routes across that state from the New Jersey boundary to the Ohio line. The commission's order, granting these certificates, was entered on May 9.

One of the proposed routes, to be known as the Northern route, follows generally the William Penn highway between Philadelphia and Pittsburgh while the other, the Southern route, follows the Lincoln highway. From Philadelphia to Lancaster, however, both routes will be along the latter.

From Lancaster the Northern route will run via

Harrisburg, Dauphin, Lewistown, Huntingdon, Altoona, Hollidaysburg, Cresson, Ebensburg, Blairsville, Wilkesburg. The Southern route from Lancaster diverges by way of Columbia, York, Gettysburg, Chambersburg, Bedford, Jennerstown, Greensburg, Wilkesburg and Pittsburgh. From Pittsburgh both routes pass through Sewickley, Rochester, Beaver Falls and Darlington to the Ohio state line near Palestine, Ohio.

It is expected that the service will be inaugurated about June 1 with five daily round trips over the Lincoln and two over the William Penn route. Restrictions prohibiting the Pennsylvania motor coaches from handling local traffic where there would be conflict with existing local highway carriers are specified in the certificates. Nor can any local traffic be handled within the city limits of Philadelphia, Pittsburgh, Altoona, Harrisburg and Lancaster.

In its order the commission said in part: "The approval of these applications will give to the public a motor vehicle transportation service co-ordinated with the largest rail carrier in Pennsylvania, supplementing service by trains of said carrier, providing an interchange of facilities and making available the resources and facilities of the Pennsylvania Railroad as a guarantee for continuous service, adequate and convenient to meet the demand and requirements of the public at all times and under all conditions."

Southern Offers Rail- Motor Coach Tours

JOINT railway and motor coach scenic tours through the mountain sections of Virginia, North Carolina, Georgia and Tennessee have been arranged by the Southern, in co-operation with several motor coach lines now in operation, and will be offered throughout the 1929 summer season, beginning May 1.

Twenty-five different combinations of rail and motor service have been arranged, providing accommodations for travel through sections of scenic interest which are without railway facilities. On some of the routes, motor transportation is used merely as an extension of the rail line; on others, passengers will be given the opportunity to make the going trip by rail to a convenient point, travel across country by motor coach to another convenient point, and make the return journey by rail.

Round trip tickets, with a 15-day limit, covering both the railway and motor coach portions of the journeys, will be sold from a large number of principal stations on the Southern Railway system. Special arrangements have been made for the handling of both large and small parties.

The motor coach routes to be covered, are as follows: Harrisonburg, Va., to Natural Bridge, and return; New Market, Va., to Culpepper, via Luray and Sperryville, through the Shenandoah National Park; Harrisonburg, Va., to Charlottesville, via Staunton, Waynesboro and Swannanoa Club; Johnson City, Tenn., to Asheville, N. C. via Elizabethton, Roan Mountain, Elk Park, Cranberry and Spruce Pine; Bristol, Tenn., to Hickory, N. C., via Mountain City, Boone, Blowing Rock, and Lenoir, through the Unaka National Forest; Boone, N. C., to Hickory via Blowing Rock and Lenoir; Winston-Salem to Asheville, via Wilkesboro, Boone, Blowing Rock, Lenoir and Morganton; Bristol to Winston-Salem, via Mountain City, Boone and Jefferson; Winston-Salem to Asheville, via Wilkesboro, Jefferson, Boone, Bristol, Elizabethton,

Elk Park and Spruce Pine; Hickory to Asheville, via Lenoir, Blowing Rock, Boone, Bristol, Elizabethton, Roan Mountain, Cranberry and Spruce Pine; Charlotte to Asheville, via Kings Mountain, Shelby, Lake Lure, Bat Cave and Chimney Rock; Asheville to Atlanta, via Waynesville, Dillsboro, Franklin, Tallulah Falls and Cornelia; and Asheville to Hendersonville, via Bat Cave, Chimney Rock and Lake Lure.

Mack Model BK Motor Coach with 110-hp. Engine

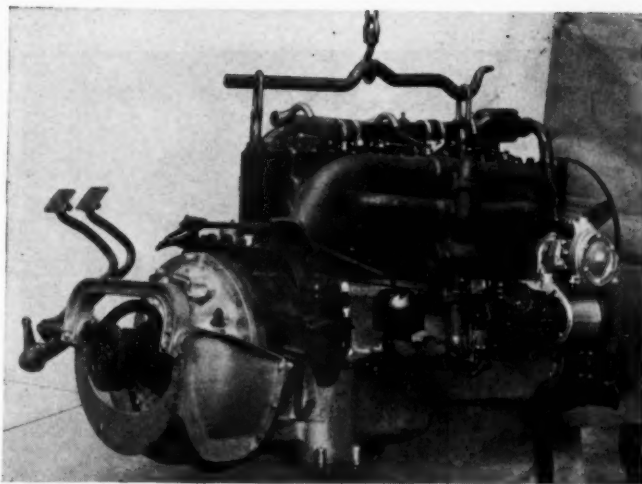
THE Mack Trucks, Inc., 252 West Sixty-fourth street, New York, recently announced its Model BK motor coach with a six-cylinder engine that develops 110 h.p. at 1,700 r.p.m. This new model has been built specifically for the purpose of providing the extra power needed for long runs and severe grades. The manufacturer, however, has emphasized in its announcement that the additional power of the Model BK is obtained at reasonable engine speeds. As a rule, it is not sufficient to state that an engine will develop 110 h.p., for an engine can develop this horsepower at a speed which may be harmful to the engine with resultant vibration, noise and expensive maintenance, due to pounding valves and wearing parts.

The engine in the new chassis has $4\frac{1}{2}$ -in. by $5\frac{1}{2}$ -in. cylinders, and is suspended at four points in Mack rubber shock insulators. The six cylinders are cast in block, with removable heads in pairs. The crankshaft, as is customary on all Mack models, is drop forged, case hardened and counterbalanced with integrally-forged counterweights.

Fuel feed is optional; electric pumps, vacuum tanks, or both may be specified. The carburetor is of the Zenith double-venturi type, Model 105 DC, $1\frac{1}{4}$ -in. The capacity of the gasoline tank is 80 gal., and it is mounted on the right side in a cradle suspended on three rubber shock insulators.

The final drive is of the Mack dual reduction type, having a full-floating rear axle, with a one-piece banjo drop forging of heat-treated chrome-nickel steel.

The Model BK is available in two standard wheel

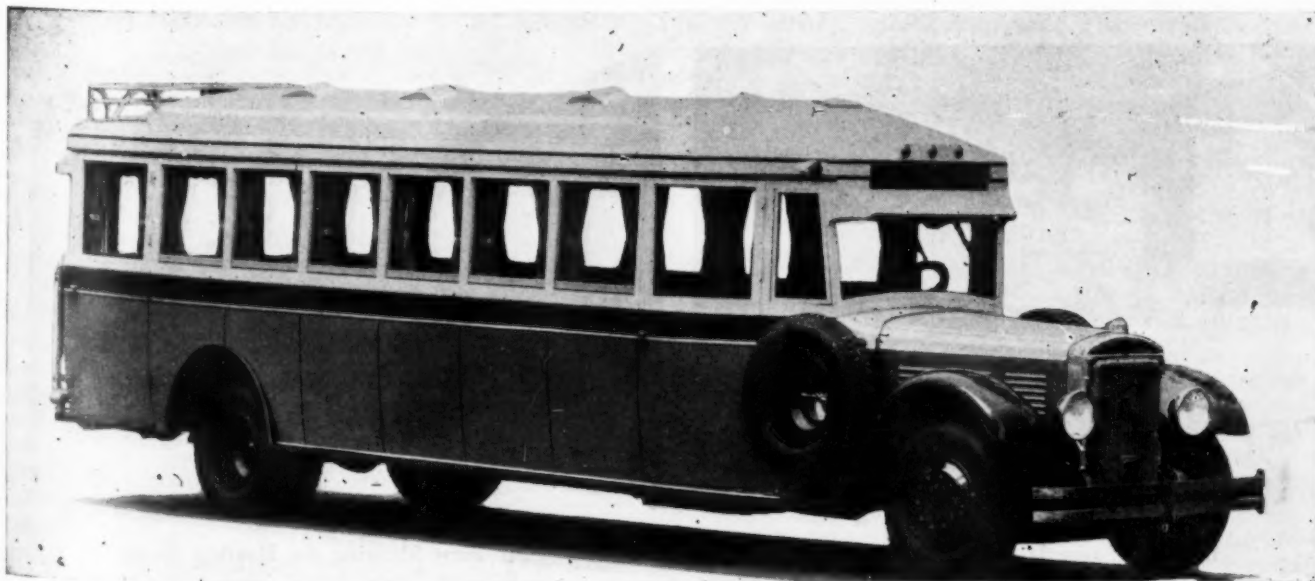


The Model BK Engine Develops 110 hp. at 1,700 r.p.m.

bases, 233 in. and 265 in., either of which is suitable for city-type or parlor-car bodies. The 233-in. chassis, equipped with a 96-in. city-type body and having seat centers of 28 in., can accommodate 33 passengers, while the chassis with the 265 in. wheelbase will handle 37 passengers. The 265-in. chassis, equipped with a parlor-car body, having 30-in. seat centers, will accommodate 33 passengers, or with seat centers of $34\frac{1}{2}$ -in., 29 passengers may be accommodated, even when the coach is equipped with reclining chairs.

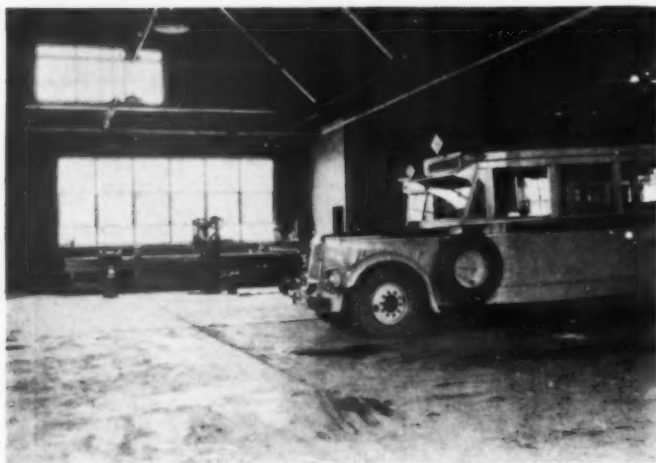
Ease of riding in the new unit is assured by the use of Mack rubber shock insulators and Lovejoy hydraulic shock absorbers. The spring tips are secured to the frame by blocks of live rubber compressed into steel boxes, replacing spring shackle pins and bushings. Similar means are employed for the suspension of the radiator, the engine, the transmission, the gasoline tank, the steering column and the front bumper.

The Model BK is equipped with four-wheel brakes of the expanding mechanical type. Augmenting this braking power is a vacuum booster attachment, by means of which pressure may be exerted on all four brake drums with reduced effort on the part of the driver. The total braking area of both sets is 759 sq. in. and of the hand brake, which is mounted separately, 144 sq. in.



The Mack Model BK Motor Coach

Some Views of the Reading's New Garage



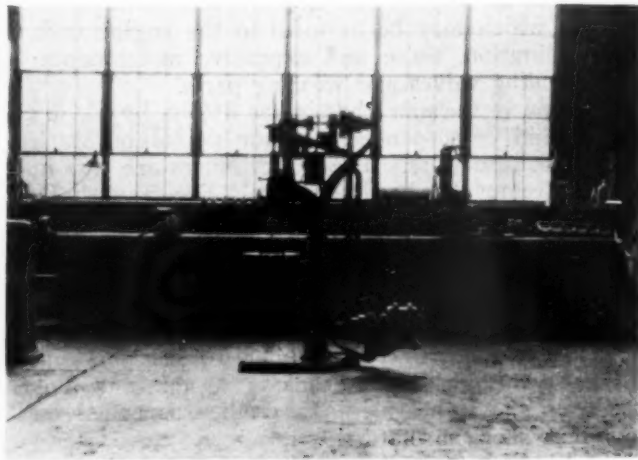
Looking Towards the Work Benches and the Storeroom



Motor Coach Over the Inspection Pit



One Corner of the Washrack



The Machine Tools are Motor Driven



Looking Towards the Inspection Pit



Rear View Showing the Heating Room



Front View of the Doylestown Garage Showing the Concrete Apron and Power Driven Gasoline Pump

Reading Fireproof Garage at Doylestown, Pa.

*Structure well equipped to service and overhaul
motor coaches quickly—Unusual features
found in inspection pit*

THE Reading Transportation Company, which within a period of a year has acquired 50 motor coaches, has built at Doylestown, Pa., a modern well-equipped fireproof garage in which ten coaches are maintained. The garage is located about two city blocks from the motor-coach terminal, which is a part of the Doylestown railroad station. The close proximity of the garage to the terminal makes it possible for the coaches to be refueled without interfering with the schedules.

Construction of the Garage

The garage, which is 80 ft. square, is built on a hard clay foundation. The columns and trusses are structural steel with the necessary longitudinal and lateral braces. The side walls are covered with 20-gage corrugated copper-bearing steel sheets fastened to the frame with heavy rolled-steel vertical studs and horizontal stiffener bullions. All connections are made to stiffener members inside of the building.

The roof is supported by a standard steel truss made of structural shapes. Eighteen-gage, 2-in by 2-in. sub-purlins, spaced 2 ft. apart, support the 20-gage roof sheets, all of which are made of copper alloy steel.

On top of the roof sheets a ½-in layer of insulating board is embedded in asphalt. This is covered with four-ply asphalt roofing material. Two revolving ventilators are placed in the roof ridge. They are fitted with dampers which are operated by galvanized-iron chains.

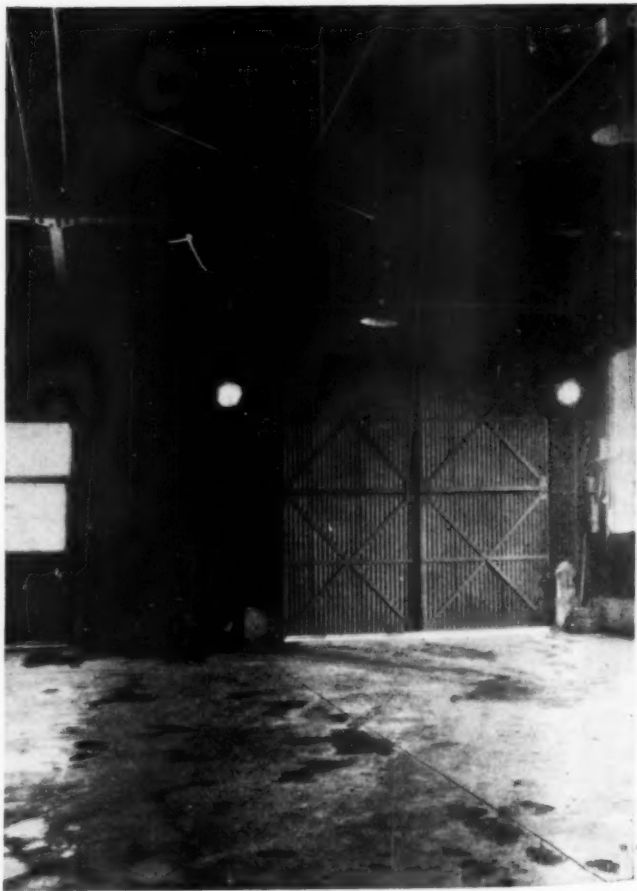
The partitions around the office, locker and toilet rooms and the storeroom and the ceilings of all rooms are made of steel panels.

Two sliding doors, one 12 ft wide and the other 14 ft. wide, lead out onto a concrete apron in front of the garage. The 12-ft. door is made of 22-gage and the 14-ft. door of 20-gage galvanized, corrugated iron, which is covered with a fireproof, weather-resisting compound.

The building is fitted with steel sash windows, which contain chain-operated ventilating units. The windows are glazed with ⅛-in. ribbed factory glass. All small doors are also made of steel.

The Drainage System

The 6-in. concrete garage floor is served by an unusual drainage system. A 2-in. drainage groove, located 40 ft. from either end of the garage, extends



Top Left—Indirect Method of Lighting the Inspection Pit; Right—Boring a Cylinder Without Removing the Block from the Chassis; Lower Left—One of the Unit Heaters Suspended from the Roof Structure; Right—A Corner of the Washrack Showing Two of the Flood Lights

across the garage floor. A drain is located at one end of the drainage groove. The floor is sloped from each of the end walls towards the groove.

A drain is also located in the center of the wash rack, which is located in the southeast corner of the garage. The floor is sloped towards this drain.

The bottom of the inspection pit, which is 5 ft. 6 in. below the floor line, is lower than the sewer line. Any water in the pit passes into a floor drain, which is connected with a sump located at the end of the pit. An automatic electric motor in the sump pumps the water up into the drain located at the end of the floor drainage groove, and thence to the sewer.

The Lighting Arrangement

In addition to good natural lighting, three rows of four ceiling outlets each are advantageously located in the main garage room. At each corner of the wash rack is located a flood light set at such an angle that the rays from the 300-watt lamps furnish ample light for washing coaches at night.

A form of indirect lighting is used in the inspection pit. The 11 outlets in the pit are located in pockets built into the side and end walls of the pit. The pockets are 13 in. deep, and 12 in. high at the rear, the top sloping upward to a height of 17 in. at the front. The bulbs are held in vapor proof fixtures fitted with Holoplane covers. This arrangement of lights, together with white walls, effectively illuminate the pit, as may be seen in one of the illustrations.

Heating and Ventilation

A low pressure steam boiler is located in the heater room built on the southwest corner of the main garage. The boiler is fired with small size anthracite coal and forced draft blower is thermostatically controlled. Steam is passed to two, unit heaters mounted on the roof trusses along the north side of garage. The blower motors in these unit heaters are also thermostatically controlled. Each unit has four outlets, as shown in one of the illustrations.

Foul air passes out of the garage through chain-operated ventilating sash built into the windows. An air duct is built into the inspection pit. When workmen are working in the pit, a suction blower is turned on which draws out any exhaust fumes that may settle in the pit.

Garage Equipment

The garage is equipped to make major overhaul repairs. In front of the long metal-covered work bench, located along the west side of the garage, are a motor driven double-end grinder and a 21-in. vertical drilling machine. Cylinders are refinished with a portable boring and grinding machine, which secures its power from an electric light socket. The cylinder block is not removed from the chassis. The tool is set up on the block, as shown in one of the illustrations and then a boring cut is made, after which the cylinder is ground to size. A full complement of micrometer tools and other close-tolerance measuring instruments are available for the workmen. A universal grinder is used for refacing valves, tappets, grinding valve reseating tools, and for all straight grinding under 4 in. in diameter. All pistons are checked on an aliner.

A 60-ton hydraulic bushing and straightening press is located near the inspection pit. Numerous compressed-air outlets are located about the garage. The air is furnished by a combination air compressor and car washer located near the wash rack.

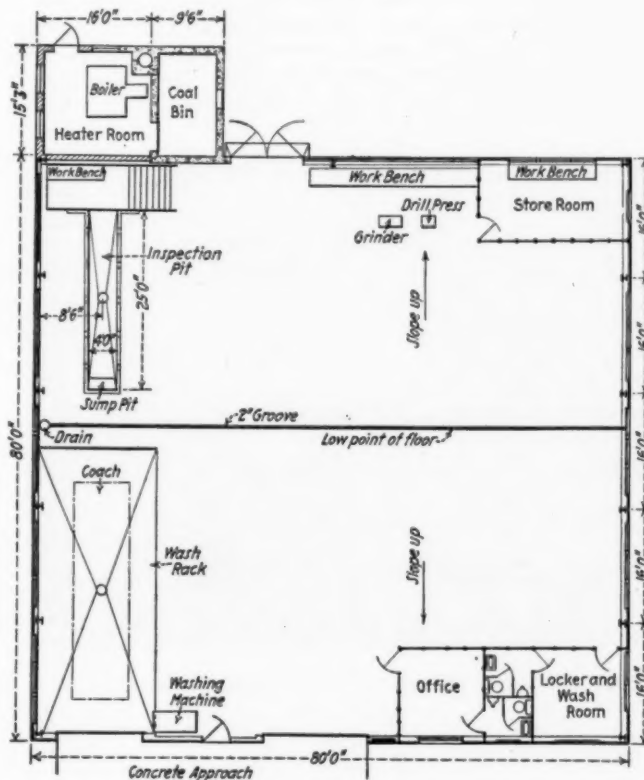
The storeroom is located in the northwest corner of

the garage. It is furnished with adjustable metal shelving for tools and materials. The room also contains a work bench on which is mounted a vise.

The office and the operators' locker and washrooms are located at the northeast corner of the garage. Each room is fitted with a washbowl and toilet facilities. Ten steel lockers are located in the operators' room.

Method of Handling the Work

The method of servicing and maintaining the coaches does not differ materially from that found in other well-organized small garages. As each unit comes in, it is refueled, watered and the crankcase oil checked. This work is done outside where an electrically-operated gasoline pump is located. The operator hands his



Floor Plan of the Reading Transportation Company's
Garage at Doylestown, Pa.

defect report to the foreman. If the defects are of a minor nature, the work is done immediately. The operator stays with his coach until it is placed in the garage for the night, it being his responsibility to check the gasoline, oil and water prior to putting his coach away.

During the night, the outside of each coach is washed, the windows cleaned, the floor mopped up and the interior dusted.

Every 2,000 miles the coaches are inspected. The body, chassis, engine and drive line are thoroughly examined for wear and defects. If any repairs are required, the work is done at once and not permitted to remain until the coach has made a predetermined mileage. Thus, at the end of every 2,000 miles each coach is put into good condition. Repairs to the engine, drive shaft, transmission, etc., are made when needed regardless of the number of miles the coach has made since these units last received a complete overhaul.

At the present time, all paint work is done on the outside. Body repairs, such as straightening dents and

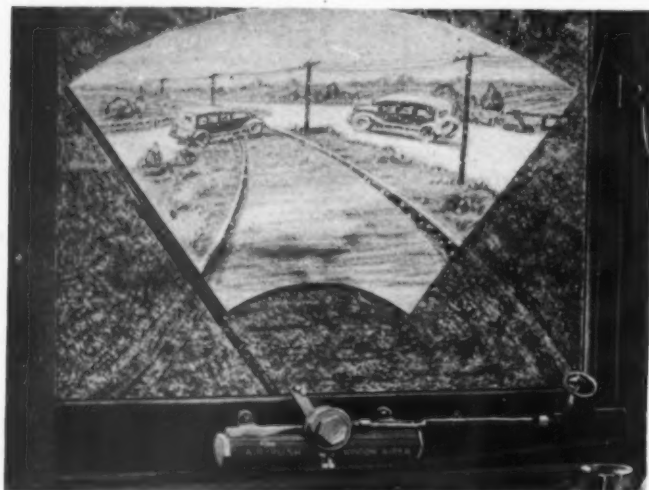
replacing panels, etc., are made by the garage mechanics.

The coaches are greased and oiled every 1,000 miles, the crankcase oil changed every 1,000 or 2,000 miles, depending on the type of coach and the transmission and differential grease is changed every 5,000 miles.

"Air-Push" Window Wiper

THE "Air-Push" window wiper, manufactured by the Hays Corporation, Michigan City, Ind., is operated by compressed air. The main body is a heavy machined bronze casting, which will not rust or corrode. The two cylinders, timer, case, and brackets are all in one piece. In addition to being sturdy, every part is easily accessible.

The cylinder block consists of two, 1-in. in diameter, opposed cylinders and a timer case integral with the



The "Air-Push" Window Wiper Installed on an Inter-urban Car

main casting. The mounting brackets are also a part of this casting. The connecting rod is a $\frac{1}{4}$ -in. by $\frac{3}{8}$ -in. steel bar. The pistons are steel plates, with oil-saturated pump leather held firmly against the cylinder walls by a spring brass spreader. The bore is 1 in. and the stroke is 1.5 in.

The timer is a simple device using a steel ball backed by a spring to produce the desired lost motion and slip action. The throw of the wiper arm can be adjusted to either 70 deg. or 90 deg. by changing one part in the timer. The main bearing is a bronze sleeve, which screws into the timer base and is held in its proper position by a locknut. The transmission arm is of cold rolled steel, with an inside handle for moving the wiper out of view or for operating it by hand, if the air supply should fail. The spring steel wiper arm is held securely to the transmission arm with a set screw and locknut. The arm gives the rubber blade a constant pressure on the window. The wiper blade is 5-ply rubber, held with a steel clip. The control valve is a standard $\frac{1}{8}$ -in. needle valve, installed convenient to the reach of the operator.

The "Air-Push" window wiper, with a 10-in. blade and a 10-in. holder, has an overall length of 15 in. The Model A, with a 90 deg. sweep comes in four

lengths, 12 in., 14 in., 15 in. and 17 in. The Model B, with a 70 deg. sweep, comes in five sizes, 14 in., 16 in., 17 in., 18 in., and 20 in. The durability of the device was proved by one railway, which kept the window wiper in operation for 553 hours continuously, without its showing any signs of wear.

Illinois Central Installs First Coach Operation

THE Illinois Central established its first motor coach line on April 27, with a motor coach operating one round trip daily between Dubuque, Iowa, and Waterloo. This coach replaces two daily passenger trains, one in each direction. The highway service is being conducted by the Central Transportation Company, a subsidiary organized by the railway, and the first motor coach operation is under the direction of L. E. McCabe, superintendent of the Illinois Central at Dubuque.

Leaving the Illinois Central station at Dubuque at 7:45 A.M., the coach reaches the Waterloo station at 11:55 A. M. Returning, it leaves Waterloo at 4:00 P. M., and arrives at Dubuque at 8:15 P. M. The distance between these places is approximately one hundred miles. Regular stops are made on both westbound and eastbound trips at the principal hotels in Dubuque and Waterloo, and also at hotels in the cities en route. Stops are also made on signal, to permit passengers to board or leave the coach at points other than the scheduled stopping places. The company is restricted from handling passengers locally between Waterloo and Independence, although it can handle them between points within this zone and points outside it.

Rates Same as Railway Fares

The motor coach fares are the same as railway fares, with a minimum fare of 10 cents. They are computed from station to station, points along the route at short intervals—none as great as five miles—having been designated as stations for rate-making purposes. Fifty pounds of hand baggage is transported free on the coach ticket. However, motor coach and railway tickets are honored interchangeably to and from stations situated on both the highway line and the railway, so that passengers with heavy baggage may purchase railway tickets, check their baggage by rail, and themselves ride either the train or the motor coach.

Commenting upon the entrance of the Illinois Central into the field of motor coach operation, L. A. Downs, president, said, "The question of operating motor coaches, either in conjunction with train service or to replace it, involves the consideration of several factors. Among them are, in the case of additional service, the need or convenience of the public and the amount of new traffic likely to be gained, and in case of substitution, whether the available traffic can be satisfactorily handled by motor coach and what economies can be effected by so doing. Since conditions are the same in no two localities, each case must be decided upon its individual merits. We are closely watching the situation in our territory, and we stand ready to undertake such operations whenever and wherever the indications are favorable."

Communications

Off-Rail Stations and Ticket Agencies

SAN FRANCISCO, CAL.

To the Editor:

Our practice with respect to the establishment of agencies is governed to a great extent by the conditions under which the various lines are operated. For instance, in California, some of our franchises limit us to station to station service. In such cases, an optional ticket-honoring arrangement is in effect as between the railroad and motor coach company, and the only motor coach transportation sold is covered by drivers' cash fare tickets.

In cases where operations are not conducted under such limitations, in addition to serving rail stations, agencies have been established in the business centers and in stage terminals, where motor coach transportation is sold. For the most part, these agencies are placed on a commission basis; however, in some of the larger cities served, we have established our own terminals, either operated by our own employees or by agents selling transportation on commission. These terminals are operated under lease, as we have not followed the policy of purchasing station facilities.

I am unable to quote any concrete examples, but it is an acknowledged fact that proper terminal and station facilities in the heart of business centers, well advertised and conveniently located to the traveling public, constitute one of the most important factors in the operation of a successful transportation service.

T. B. WILSON,
Vice-President and Manager,
Southern Pacific Motor Transport Co.

PORTLAND, ORE.

To the Editor:

Our motor coaches pick up and discharge passengers at some of our rail stations, where the station is located convenient to the highway, and stop at all uptown stage commission ticket stations. The uptown stage station agencies are maintained with the view of securing a greater share of the travel than would be possible with an agency located in the rail station inconvenient to the business center.

We do not own any off-rail stations. All such agencies, with the exception of that at Portland, are on a commission basis. Motor coach tickets are sold at all of our commission agency stations and at a few of our rail stations. At Portland, where we operate in and out of a stage terminal, the agency is handled on a rental basis. Our stage agencies are handled on a commission basis, agents receiving 10% of the gross sales.

At The Dalles, Ore., our stage tickets are sold at our rail station and also at an uptown stage commission agency. During the three months' period from July 1, 1927, to September 30, 1927,—during which time we had no uptown stage agency,—the stage tickets sold amounted to \$598.38. For the same period at the rail station during 1928, the ticket sales were \$314.50; at the uptown commission stage agency, the sales amounted to \$1109.45, an increase of \$825.57.

J. P. O'BRIEN,
President,
Union Pacific Stages, Inc.

SANTA FE, N. M.

To the Editor:

Our operations here are somewhat different from the average stage operations, inasmuch as the territory we serve is a sparsely populated district in which we have very few people to draw from. Our motor coaches pick up and discharge passengers at railroad stations and points more convenient to the business centers of the towns on our lines. Railroad station stops are made because of the fact that we operate all connections between Lamy and Santa Fe with main line trains. Coach stops in the city of Santa Fe have been established in the heart of the city, which is considered the most convenient point to the business section of Santa Fe.

All off-rail stops are made at small towns through which

our coaches operate; and we do not have stations of any kind, stops being made only long enough to pick up and discharge passengers. Tickets for transportation in our motor coaches are sold at railroad stations, as well as through ticket agencies. The basis of compensation of special ticket agents is 5% on gross sales.

We do not contend that the establishment of special ticket agents results in increased business, although it is likely that a small increase results. We follow this practice more as a convenience to our patrons than for any other reason.

R. H. CLARKSON,
Santa Fe Transportation Co.

BOSTON, MASS.

To the Editor:

On 25 motor coach routes, we have 114 regular stops, counting only once points which serve more than one route. Of this number, 67 are off railroad property, and 47 are at railroad stations. Highways are often more direct than the rail line, and serve sections not served by the railroad. Again the motor coach gives a more direct service, center to center, or door to door, and for this reason it is always desirable to establish a stop or a terminal in the heart of a business district, if possible. After all, the stop, waiting room or terminal which is most convenient to the public is the one we seek to establish. Oftentimes, competing lines of transportation serve the sections which are not served by the rail lines, and public service boards protect the inner lines of transportation by restricting our stops to the railroad stations.

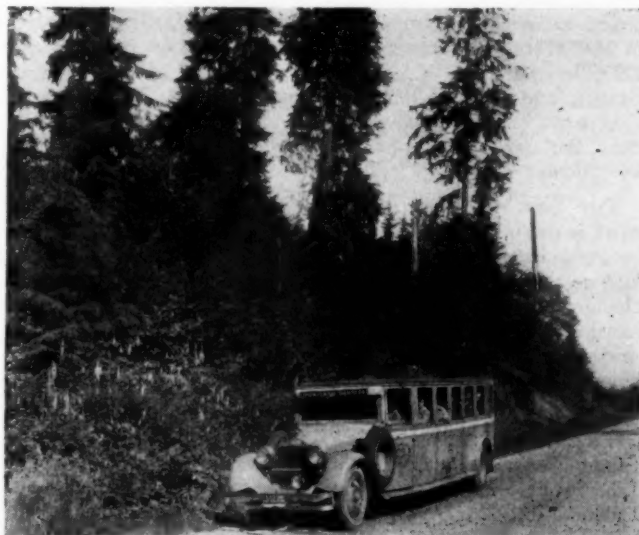
Thus far we do not own any off-line or off-rail stations. Arrangements are made with drug stores, lunch rooms and hotels for the sale of tickets and the usual waiting room facilities. Coach tickets are sold at practically all railroad stations where stops are made and at other agencies where there is sufficient traffic to warrant. We have many points where tickets are sold in hotels, stores and restaurants. Compensation to agencies is usually based on a certain percentage of gross revenue received, although in some cases a flat rate per week or month is agreed upon.

I cannot give concrete examples of business increases because of off-rail coach stations. We know, however, that we handle quite a good many passengers who would not be carried on our routes but for these off-rail stops. Sections are served in this manner that would be without regular organized transportation but for the B. & M. highway service.

It seems to me the entire situation can be summed up in the fact that highways are more frequent than rail lines and in many cases more direct. Consequently motor coach service is more direct.

R. J. LITTLEFIELD,
Manager Motor Coach Service,
Boston & Maine Transportation Co.

* * *



Along a Spokane, Portland & Seattle Motor Coach Route

Motor Transport News

THE MISSOURI PACIFIC TRANSPORTATION COMPANY is reported to have purchased the Mathis Bus Line, operating between Jonesboro, Ark., and Pocahontas, and between Jonesboro and Wynne.

THE WEST VIRGINIA TRANSPORTATION COMPANY, a subsidiary of the Baltimore & Ohio, has leased space in the Waldo Hotel Building, Clarksburg, W. Va., which will be remodelled into a motor coach terminal.

MILTON R. STAHL, St. Louis, Mo., an attorney, has been appointed chairman of the Missouri Public Service Commission. His term as commissioner will expire on April 15, 1935. Armin Ing, whom Mr. Stahl succeeds as chairman, remains a member of the commission.

THE SOUTHERN PACIFIC MOTOR TRANSPORT COMPANY has applied to the California Corporation Commission for permission to purchase the California Parlor Car Tours, an organization which has been operating all-expense motor coach tours in California for several years.

THE MISSOURI SOUTHERN has organized a subsidiary, the Missouri Southern Transportation Company, to operate motor coaches and trucks in its territory. The company has a 54-mile railway line extending from Leeper, Mo., the headquarters of the company, to Bunker. One round trip is being made daily over the line at the present time by rail motor car.

THE DENVER & RIO GRANDE WESTERN is seeking to secure an exclusive common carrier franchise for the operation of motor coaches to the rim of the Royal Gorge near Canon City, Colo. F. A. Peil, assistant to the president of the railway, and other officers met with the city council of Canon City on May 6, to present their claims for the permit.

THE NORTHLAND TRANSPORTATION COMPANY, a subsidiary of the Great Northern, operated 8,235,138 motor coach miles with its 127 motor coaches during 1928, according to a report of the Minnesota Railroad and Warehouse Commission. The total number of passengers carried was estimated at 3,147,230, and the gross revenue was estimated at \$2,460,000. The total operating expenses of the Northland, including taxes, were \$2,098,500.

THE INTERSTATE COMMERCE COMMISSION has affirmed the proposed report of Attorney-Examiner Leo J. Flynn, reported in the *Motor Transport Section* of December 22, 1928, page 1273, in the case of A. Jaloff, proprietor of the Columbia Stages, and the Spokane, Portland & Seattle Transportation Company. The commission ruled that it has no jurisdiction over the organization of motor coach operating subsidiaries by railways.

THE SPOKANE, PORTLAND & SEATTLE TRANSPORTATION COMPANY is adding three additional round trips daily to its schedule between Portland, Ore., and Astoria. It is also establishing highway service between Portland and Birkenfeld. These changes and additions are being made in anticipation of expansion in motor coach travel in the early summer, as well as during the later season, according to R. H. Crozier, general passenger agent of the Spokane, Portland & Seattle Railway.

THE RATES, SERVICE AND FACILITIES of the Auto Interurban Stage Company, operating lines between Spokane Valley and Liberty Lake are to be investigated by the Department of Public Works of Washington, as a result of petitions filed with the department by patrons who object to a proposed increase in fares. The department ordered a suspension of the

cash fare rate increase, amounting to 5 cents per station, but did not suspend the proposed 25 per cent increase in commutation rates. According to W. S. Hawley, a loss of 1½ cents per mile was suffered by the motor coaches operated by the company between Spokane Valley and Millwood in 1928.

THREE 120 hp. six-wheel trucks, which were manufactured in Germany, and are the first of these European motor trucks to be shipped to America, were unloaded by the Pennsylvania at Chicago on May 15. A distinguishing feature of these trucks is the two-drive shafts, one connected with each pair of rear wheels. The chassis alone weighs seven tons and the truck has a capacity of 26,000 lb. The trucks were built in Braunschweig, Germany, by H. Bussing.

THE MISSOURI PUBLIC SERVICE COMMISSION now has under advisement three applications for certificates of convenience and necessity to permit the operation of motor coaches over state highway No. 36, between Hannibal, Mo., and St. Joseph, and between Hannibal and Quincy. One of the applicants is the Burlington Transportation Company, a subsidiary of the Chicago, Burlington & Quincy. The others are C. H. Hastings of Maryville, Mo., and Ira Cook, of Columbia, Mo., both of whom now operate motor coaches over other routes.

THE SENATE of the Missouri legislature has engrossed a committee substitute for senate bills Nos. 4, 256, 551 and 707, which would fix license fees for motor coaches at \$10 per seat per year, a considerable increase over the present rate. The senate measure would also restrict the size of motor coaches to a length of 30 ft., a width of 8 ft., and a height of 12½ ft. It is reported that the senate calendar is greatly congested, and that the motor coach taxation bill will probably die unless it is given precedence over several hundred other measures now pending.

Largest Coach Lines Merge, Report

According to press reports, terms of the expected merger of the Greyhound Lines, the Yelloway Lines, and the Pickwick Lines, the three largest motor coach systems, have been agreed upon. These reports stated that the lines west of the Mississippi River will be known as the Pickwick-Greyhound Lines, and those of the east of the Mississippi, as the Greyhound Lines, the name of Yelloway disappearing from the picture. The same report repeated the rumor which has long been current that the Pennsylvania and the Great Northern are stockholders in the new company.

Consolidation of the Yelloway and the Greyhound Lines was carried out some time ago with the organization of the American Motor Transit Corporation. The Greyhound and Pickwick Lines have had joint traffic arrangements, and it has appeared logical that these ultimately would also merge.

Officers of the Pennsylvania and the Great Northern have denied that their railways have a financial interest in these transcontinental motor coach systems, but the rumors persist. The Southern Pacific has also been mentioned as interested.

Burlington Proposes Frequent Schedules

A proposal to operate eight round trips per day between Omaha, Neb., and Lincoln has been filed with the Nebraska Railway Commission by the Burlington Transportation Company, motor coach operating subsidiary of the Chicago, Burlington & Quincy. The transportation company also proposes to add three round trips between Lincoln, Neb., and Hastings, via direct route and via Grand Island. At the time of going to press, no date has been set by the commission for a hearing on the application.

The schedule proposed by the transportation company between Omaha and Lincoln, provides for departure from each terminal at 6:30 A. M., 7:30 A. M., 9:30 A. M., 11:30 A. M., 1:30 P. M., 3:30 P. M., 6:30 P. M., and 9:30 P. M. The company has recently purchased twelve additional parlor type motor coaches, to provide the proposed Omaha-Lincoln service.

On the direct route between Lincoln and Hastings, it is

proposed to have the coaches depart from Lincoln at 10:05 A. M., 2:05 P. M., and 6:05 P. M., and from Hastings at 7:30 A. M., 12:30 P. M., and 5:30 P. M. Coaches would leave Lincoln for Hastings via Grand Island at 10:10 A. M., 2:10 P. M., and 6:30 P. M.

Highway Services Operated by New Zealand Government Railways

The New Zealand Government Railways have inaugurated a plan for the co-ordination of rail and highway services in order to avoid wasteful competition and to adjust transportation facilities to modern requirements, according to a recent article in *Modern Transport* (London). After a careful survey of the situation the railway administration decided to purchase existing highway services in certain areas.

The initial venture of the administration in motor coach operation followed the purchase of two motor coach fleets, totaling 13 vehicles, which were operating on a 12-mile run between Napier and Hastings, two towns in the Hawke's Bay province. The operation of these vehicles has enabled the administration to discontinue eight passenger trains. The largest motor coach fleet operated by the railways is in service on a suburban run between Wellington and Hutt Valley. On this route there are 41 motor coaches. Two other routes are in operation between Wellington and its suburbs.

In addition to the foregoing, two routes are operated in rural areas of the South Island. One of these, on which three motor coaches are used, serves country districts within a 48-mile radius of Christchurch. The second passes through a rich farming area. The establishment of these runs, in addition to attracting traffic, permitted the withdrawal of two locomotives and train crews from the area.

These railway motor coaches are available for hire by sightseeing or other special parties. It is planned to install a standard type motor coach as present varied types, purchased from several different independents, are retired.

Government Report on Bellevue Grade Crossing Disaster

The Interstate Commerce Commission has made an investigation of the wreck of a motor coach in collision with a trolley car near Bellevue, Ohio, on January 22 last, when 20 passengers in the coach were killed, and has made public a report on the case, signed by W. P. Borland, director of the Commission's Bureau of Safety.

On January 22, about 1:10 p.m., during a snow storm, a coach of the Greyhound Lines, traveling Eastward on Route U. S. 20, bound from Detroit to Cleveland, was run upon the track of the Lake Shore Electric Railway, at a crossing where the highway and the railway track lie at an angle of 25 degrees, and was struck by a westbound passenger train, No. 213, consisting of a single motor car, No. 164; the motor car having been running at from 25 to 40 miles an hour. The coach was destroyed and the trolley car was derailed. Twenty passengers in the coach were killed and nine passengers and one employee were injured; and on the trolley car two passengers and two employees were injured.

The coach had been stopped only 9 ft. from the track. Edward Butler, the driver, said that he got out, wiped the windshield, walked ahead, looked up and down the track, and at once returned to his seat. He could not see far on account of the snow. Getting back into the coach, he looked both ways and started; and his first knowledge of the approaching trolley car was a shout from a passenger. He said that he did not hear a whistle at any time and that he could see only 25 or 30 ft. He had operated a coach every day over this route for five months and had been examined as to his sight and hearing. A line of poles at the side of the track interfered somewhat with his view of the approaching train.

The motorman of the railway car said that he was able to see the coach when about 800 ft. away, the snow having turned to rain. Witnesses testified that the motorman had sounded his whistle according to rule at three highway crossings a short distance east of the point of collision.

The report placed responsibility on the motor coach driver, Butler. It observes that there is neither watchman nor automatic flash light signals at the crossing, but that the driver

was thoroughly familiar with the location. Accepting the statement that objects were visible for over 700 ft. the report can find no reason why the driver did not see the approaching train. Some of the coach windows were covered with steam, but the driver seems to have made no claim that this condition affected his look-out. It seems likely that when the coach was stopped, it was at a point in line with the poles which impeded the view of the train.

From the office of the county engineer at Norwalk, Ohio, it was learned that changes are in contemplation which would relocate the highway so as to discontinue certain crossings of the track, but until such time as this proposed change is completed, "in view of the density of highway traffic and of the traffic on the electric railway, protection of some kind," says the report, "should be furnished at the crossing at which this accident occurred, either by flashlights or by a watchman." Driver Butler had five years' experience and had been in the employ of the Greyhound Lines eight months.

Union Pacific Stages Acquires Additional Lines

Continuing its policy of expansion in the northwest, the Union Pacific Stages, a subsidiary of the Union Pacific System, has acquired several additional independent motor coach lines in the state of Idaho. Its most recent purchases give it lines between Boise, Ida., and Emmett, and between Boise and Caldwell. Control of the motor coach terminal at Boise went to the Union Pacific Stages with these purchases. The company has also purchased a motor coach line between Grangeville, Ida. and Weiser. This line is 200 miles long. Six pieces of equipment, as well as the franchise held by the company, were taken over by the Union Pacific through this purchase.

During the past two months, the Union Pacific Stages has increased its motor coach fleet from 9 to 54 motor coaches. It has added to its original line between Portland, Ore., and Pendleton until its highway system now covers southeastern Washington, central Idaho and a part of Oregon. All of the lines parallel the railway lines of the Union Pacific System, so that passengers may ride either in motor coaches or in trains, as they prefer.

The Union Pacific Stages has recently authorized the improvement of the Spokane motor coach terminal, of which it now has control. The offices will be rearranged, a marble floor will be laid in the public waiting room, and the exterior finish of the building will be changed.

Recently a number of changes were made in the schedules of the lines formerly operated by the Blue Mountain Transportation Company, the Interstate Coach Company, and the Schact Bus Company, which have been taken over by Union Pacific Stages. Instead of one round trip daily between Walla Walla, Wash., and Lewiston, the company is now operating four schedules. One round trip daily is being operated between Pendleton, Walla Walla, and Colfax, connecting with a coach on the Interstate Coach Company division for Spokane. Two round trips daily are being operated between Walla Walla and Pasco, connecting at the latter point with coaches of the Yakima Motor Coach Company and Yakima Valley points.

Orders for Equipment

THE RICHMOND, FREDERICKSBURG & POTOMAC has received two A. C. F. motor coaches with 230-in. wheel base.

THE SOUTHERN PACIFIC has purchased three standard parlor car type 37-passenger Twin coaches from the Twin Coach Company. The coaches will be used on the Oregon lines of the Southern Pacific Motor Transport Company.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has accepted delivery of two type Z-240 Yellow coaches.

THE CENTRAL OF GEORGIA has accepted delivery on one Mack, model BK, six-cylinder motor coach chassis.

THE UNION PACIFIC has accepted delivery on one Mack, model BK, six-cylinder motor coach chassis.

THE READING TRANSPORTATION COMPANY has accepted de-

livery on two Mack, model BK, six-cylinder motor coaches of the observation type.

THE BURLINGTON TRANSPORTATION COMPANY has accepted delivery of four Type W 21-passenger Yellow observation coaches.

THE INTERSTATE COACH COMPANY, Spokane, Wash., has accepted delivery of a Type W Yellow observation coach. The Interstate Coach Company was recently taken over by the Union Pacific Stages, Inc.

Among the Manufacturers

The White Company, Cleveland, Ohio, will construct a factory branch at Utica, N. Y., at a cost of \$50,000. The building will have 13,000 sq. ft. of floor space, and will be in charge of George N. Wilkins, branch manager.

The annual roll call has just been issued by the White Company, Cleveland, Ohio. Ninety-one additional companies have been added to this list of those operating ten or more White trucks or motor coaches, and 3,270 more units are represented. One company has in regular operation more than 2,200 White trucks. There are three companies which operate more than 1,000 each, and 57 with fleets of 100 or more, 150 with fleets of 50 or more vehicles, and 490 with more than 25 vehicles in service.

J. L. Engels, sales promotion manager for the commercial car division of the Studebaker Corporation of America, has been appointed Western division commercial car representative, with headquarters at San Francisco, Cal. He will cover the territory under the jurisdiction of the Portland, San Francisco and Los Angeles branches. C. H. Miller, commercial car representative of the Philadelphia branch, has been appointed Eastern division commercial car representative, with headquarters at Philadelphia, Pa. His territory will include the Boston, New York, Buffalo, Philadelphia, Washington, Pittsburgh and Cleveland branches. T. E. Connor, commercial car representative of the St. Louis branch, has been appointed commercial car representative of the Middle West division. His territory will include the Detroit, South Bend, Cincinnati, Kansas City, St. Louis, Omaha, Chicago and St. Paul branches.

Motor Transport Officers

Noel W. Smith, assistant to the general manager, Eastern region, of the Pennsylvania, has been appointed general superintendent of motor service, with headquarters at Philadelphia, Pa. Mr. Smith



Noel W. Smith

was born on December 25, 1869, at Williamsport, Pa. He was educated at the Williamsport High School and Lehigh University, entering railway service in July, 1887, as clerk for the Pennsylvania. In May, 1893, Mr. Smith was appointed road man for the same road then serving successively as assistant supervisor, supervisor, assistant engineer and division engineer. In January, 1910, he was appointed superintendent of the Central division and in June, 1913, he served

in the same capacity on the Middle division. He was promoted to the position of general superintendent of the Eastern Pennsylvania division in July, 1918, and in March, 1920, he was appointed assistant general manager of the Central

region, later serving in the same position for the Eastern region. Mr. Smith was furloughed in July, 1924, to perform work for the United States Government in connection with the Alaska Railroad, returning to the Pennsylvania as assistant to the general manager of the Eastern region in August, 1928, which position he held at the time of his recent appointment as general superintendent of motor service.

Graham C. Woodruff, assistant freight traffic manager of the New York Central, with headquarters at New York, has resigned from that position to become chairman of the U. S. Freight Company.



Graham C. Woodruff

Mr. Woodruff was born on February 13, 1880, at Rahway, N. J. He was educated at Rutgers College and entered the service of the New York Central & Hudson River (part of the New York Central) in September, 1900. He served with the New York Central continuously in various positions and in 1925 was appointed assistant freight traffic manager, which position he held at the time of his retirement from the service of that road. Mr. Woodruff was actively associated with

the work of the Motor Transport Conference, serving as a member of the organization committee and later as vice-chairman in charge of the section devoted to the study of the application of the motor truck to the use of the steam railroads. When the Motor Transport Conference was succeeded by the Motor Transport Division, American Railway Association, Mr. Woodruff was elected vice-chairman of the division, serving as chairman of the Motor Truck section. In addition to serving in the above capacities, Mr. Woodruff is also vice-president of the L. C. L. Corporation.

New Publications

PRODUCTION TOOLS.—"Equipment for Automotive and Other High Production Shops" is the title of the attractive 72-page catalogue just issued by the Consolidated Machine Tool Corporation of America, Rochester, N. Y. The catalogue describes a large variety of production tools designed especially to meet mass production requirements of automotive and other industrial shops, but illustrates only those of widest interest. Production data are given where available.

THE NATIONAL AUTOMOBILE CHAMBER OF COMMERCE has just issued the 1929 edition of "Facts and Figures of the Automobile Industry." This is a 96-page booklet, with full statistics regarding motor vehicle manufacturing and operation in the United States and in foreign countries. A new feature introduced in this edition for the first time shows the carloads of automotive freight, including automobiles, motor trucks, parts, and tires, carried by the steam railways individually in 1928, together with the revenue derived from this service. The tabulation, the information in which was taken from the Railroad Commodity Reports, indicates that 936,107 carloads of automotive freight were carried by the railways in 1928, giving them a revenue of \$193,798,936. Copies of "Facts and Figures of the Automobile Industry" may be obtained upon application to the National Automobile Chamber of Commerce, 366 Madison Ave., New York.

Another recent publication is "Bus Facts For 1929" published by the National Motor Bus Division of the American Automobile Association of Washington, D. C. This 27-page booklet contains a 15-in. by 22-in. map showing virtually all of the motor coach lines in the United States.